

Healthcare Associated Infections in Utah



2019
Annual
Report



Utah Department of Health
Division of Disease Control and Prevention
Bureau of Epidemiology

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Foreward

Healthcare-associated infections (HAIs) are a major, yet often preventable, threat to patient safety. The Utah Department of Health's (UDOH) Healthcare-Associated Infections and Antimicrobial Resistance (HAI/AR) Program is committed to helping Utah patients receive the best and safest care. Implementing statewide HAI prevention efforts is an essential part of a comprehensive patient safety program. Publicly releasing HAI data is an important step in creating transparency for healthcare safety and quality in Utah.

Patients have a right to feel safe and assured that public health is working to eliminate preventable infections. Thanks to all the healthcare professionals and facilities in Utah who work tirelessly to realize this goal. Two of the keys to elimination of HAIs are 1) the accurate collection of data to assess prevention impact, and 2) the dissemination of results to healthcare providers and consumers. Conscientious efforts in data reporting contribute toward meeting HAI prevention efforts and control needs.

This 2019 Annual Healthcare-Associated Infections Report was developed in collaboration with the Utah Healthcare Infection Prevention (UHIP) Governance Committee, a multi-disciplinary panel of state leaders in patient safety, infectious diseases, and infection control. It provides an update on previous HAI reports detailing Utah's progress toward the goal of reducing and, ultimately, eliminating HAIs.

This report will allow Utahns to compare HAIs among licensed hospitals in Utah. The data in this report are self-reported to the National Healthcare Safety Network (NHSN) by each facility required to report HAIs by the Centers for Medicare and Medicaid Services (CMS). The UDOH analyzes the data, using proven statistical methods, to provide comparison information.

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Executive Summary

Healthcare-associated infections (HAIs) are infections that are acquired while patients are receiving treatment for another condition in a healthcare setting. The Utah Department of Health (UDOH) works with community partners to monitor and prevent these infections because they are an important threat to patient safety. Because of the concerns with these deadly and costly HAIs, Utah state regulation requires the UDOH to collect data on HAIs and report this data to the public on an annual basis. Validation of these data by UDOH is limited. Data also does not reflect variabilities of patient acuity experienced in different facility settings. This report contains the following data:

- All infections for which Centers for Medicare and Medicaid Services (CMS) requires facilities to report to the National Healthcare Safety Network (NHSN):
 - Central line-associated bloodstream infections (CLABSIs)
 - Catheter-associated urinary tract infections (CAUTIs)
 - Surgical site infections (SSIs) – exclusive to colon surgeries and abdominal hysterectomy surgeries
 - *Clostridioides difficile* (*C. difficile*) infections
 - Methicillin-resistant *Staphylococcus aureus* (MRSA) bacteremia infections
 - Dialysis infection events
- Identified facilities, as required by the Utah Health Code, Title 26, Chapter 6, Section 31
- A comparison of data in acute care facilities, long-term acute care facilities, and inpatient rehabilitation facilities to national aggregate data.

Introduction

Healthcare-associated infections, or HAIs, are infections that people acquire while they are receiving treatment for another condition in a healthcare setting. HAIs can be acquired anywhere healthcare is delivered, including inpatient acute care hospitals, outpatient settings (e.g., ambulatory surgical centers and end-stage renal disease facilities), and long-term care facilities (e.g., nursing homes and rehabilitation centers). HAIs may be caused by any infectious agent, including bacteria, fungi, and viruses, as well as other less common types of pathogens.

HAIs are a significant cause of morbidity and mortality. Each day, approximately one in 31 U.S. patients has at least one infection in association with his or her hospital care, underscoring the need for improvements in patient care practices in U.S. healthcare facilities. Based on the 2019 National and State Healthcare-Associated Infections Progress Report, there has been an overall decrease of about 7% in central line-associated bloodstream infections (CLABSIs) and about an 8% decrease in catheter-associated urinary tract infections (CAUTI) between 2018 and 2019 in acute care hospitals.¹ Despite progress, more action is needed at every level of public health and healthcare to eliminate infections that commonly threaten hospital patients.¹ These infections cost the U.S. healthcare system billions of dollars each year and lead to the loss of tens of thousands of lives. In addition, HAIs can have devastating emotional, financial, and medical consequences.²

Infections may occur as a result of complications following a surgical procedure, known as a surgical site infection (SSI), or when staff fail to closely follow infection control practices such as hand washing. According to the 2019 National and State Healthcare-Associated Infections Progress Report, there has been no significant change in SSIs in acute care hospitals between 2018 and 2019.¹ Patients receiving medical care and taking antibiotics for long periods of time may be more susceptible to HAIs such as *C. difficile* infections. These infections now rival methicillin-resistant *Staphylococcus aureus* (MRSA) as the most common organism to cause HAIs in the U.S. Per the 2019 National and State Healthcare-Associated Infections Progress Report, there has been an 18% decrease in hospital onset *C. difficile* infections in acute care hospitals between 2018 and 2019.¹

HAIs may also be caused by the use of various types of invasive devices, such as a central line or urinary catheter when patients are ill. The use of such devices can harm patients' natural defenses against germs and the longer these devices are in place, the greater the risk of infection.³ Types of HAIs associated with devices include CLABSIs, CAUTIs, or infections associated with the usage of ventilators. CLABSIs, CAUTIs, and ventilator-associated pneumonia account for roughly two-thirds of all HAIs.⁴

Patients who undergo dialysis or "hemodialysis" treatment (a treatment for patients with inadequate kidney function) also have an increased risk for an HAI. They are at high risk because this artificial process of getting rid of waste and unwanted water in the body requires frequent use of catheters or insertion of needles to access the bloodstream. Hemodialysis patients have weakened immune systems, which increase their risk for infection. They also

require frequent hospitalizations and surgery where they might acquire an infection.⁵ Another common HAI is caused by the bacteria *C. difficile*. Most *C. difficile* infections are connected with receiving medical care and taking antibiotics for long periods of time.⁶ Half of all hospital patients with *C. difficile* infections have the infection when admitted and may spread it within the facility.⁷ The most dangerous source of spread to others is patients with diarrhea. MRSA is a bacterium that is resistant to many antibiotics and common in healthcare facilities. In the community, most MRSA infections are skin infections. In medical facilities, MRSA causes life-threatening bloodstream (or bacteremia) infections, pneumonia, and surgical site infections. MRSA bacteremia infections reported by Utah acute care facilities are included in this report.

How are Utah HAI data collected?

Identifying HAIs requires an organized approach involving several different types of activity. It is important to determine whether infections are healthcare-associated or already present upon facility admission. Due to the concerns about deadly and costly HAIs, state regulation (Rule 386-705, Epidemiology, Healthcare-Associated Infection) requires the UDOH to collect and report data on HAIs.

Since 2008, acute care hospitals with intensive care units have submitted data directly to the UDOH for the annual HAI report; however, reporting facilities were not identified by name. In 2011, the CMS required acute healthcare facilities to report specific HAI data to the National Healthcare Safety Network (NHSN) for payment reimbursement. In 2012, Utah Health Code Title 26, Chapter 6, Section 31, Public Reporting of Healthcare Associated Infections, was passed requiring the UDOH to: a) access and analyze facility-specific NHSN data required by CMS; b) publish an annual HAI report for the public in which facilities are identified by name; and c) conduct validation activities.

Facilities in Utah submit data about specific healthcare-associated infections (HAIs) to the NHSN, a secure, online tracking system used by hospitals and other healthcare facilities. The Utah data are reported to NHSN by each facility that is required to report HAIs to CMS. More than 17,000 hospitals and other healthcare facilities nationwide report data to NHSN. This information is then used for summarizing HAI data at the national level and for care improvement by facilities, states, regions, quality groups, and national public health agencies, including CDC.

For an HAI to be publicly reported in Utah under Title 26, Chapter 6, Section 31, an HAI must meet CMS's specific reporting measures required for reporting to NHSN. The UDOH works with NHSN and other partners to monitor and prevent these infections because they are a significant threat to patient safety.

Interpreting HAI data

What does the standardized infection ratio (SIR) mean?

The SIR is the ratio of the observed number of infections (events) to the number of predicted infections (events) for a summarized time period.

National baseline: *Aggregated* data reported to the National Healthcare Safety Network (NHSN) by all facilities during a baseline period that is used to “predict” the number of infections expected to occur in a hospital, state, or in the country. In the 2019 National and State Healthcare-Associated Infections Progress Report, the number of predicted infections is an estimate based on infections reported to NHSN during the 2015 national baseline for all facility types.

SIR Value	Interpretation
Less than 1	There were fewer infections observed than predicted, based on the national aggregate data.
Equal to 1	There were about the same number of infections observed as predicted, based on the national aggregate data
More than 1	There were more infections observed than predicted, based on the national aggregate data.

To enforce a minimum precision criterion, SIRs are only calculated when the number of predicted infections is greater than 1.0. This rule was instituted by NHSN to avoid the calculation and interpretation of statistically imprecise SIRs, which typically have extreme values.

- ▼ Statistically **FEWER** infections than the national aggregate data
- ▲ Statistically **MORE** infections than the national aggregate data
- / Predicted to have less than one infection for the year, but had one or more infections, as defined by NHSN, in 2019
- * Predicted to have less than one infection for the year, and had **ZERO** infections, as defined by NHSN, in 2019
- **NOT** statistically different from the national aggregate data

Utah HAI summary data, 2015-2019

Yearly trends from 2015-2019: SIR of Utah facilities relative to national aggregate data. These trends reflect intensive, non-intensive, and newborn intensive care settings in acute care facilities and long-term acute care facilities.

+Source: CMS data.

*Denotes statistical significance of the SIR (number of infections/predicted infections) using a Poisson exact test

Figure 1. Central line-associated bloodstream infections (CLABSIs), Utah, 2015-2019

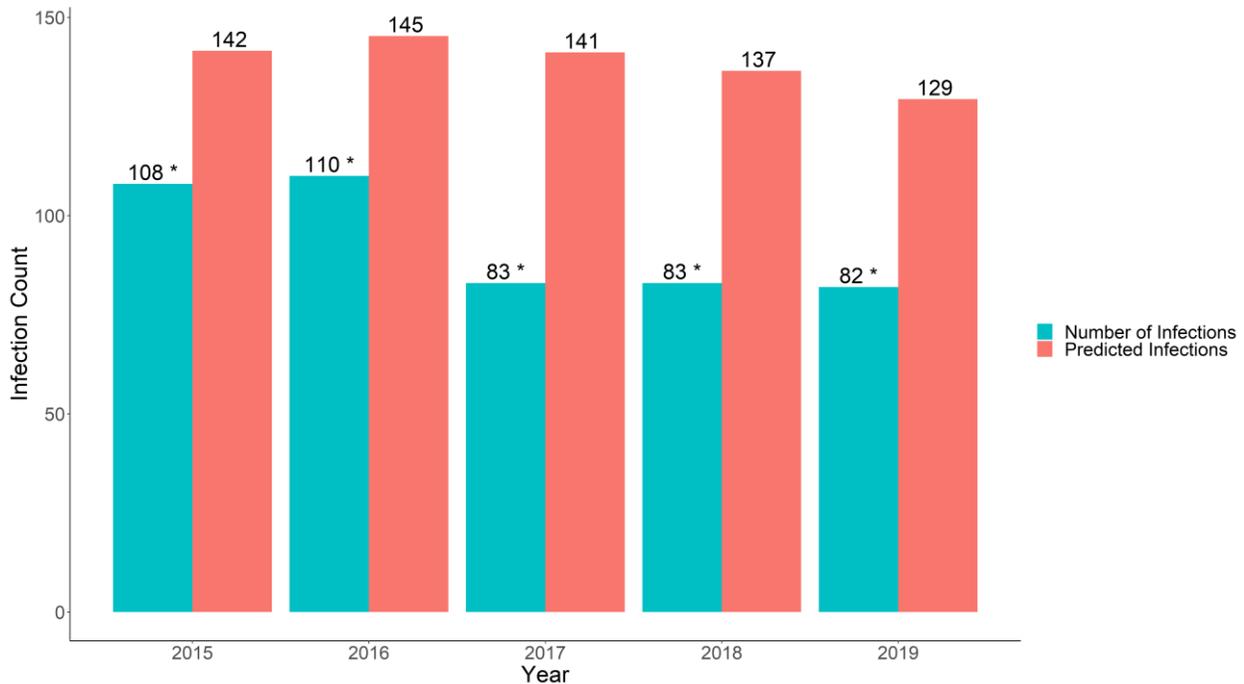


Figure 2. Catheter-associated urinary tract infections (CAUTIs), Utah, 2015-2019

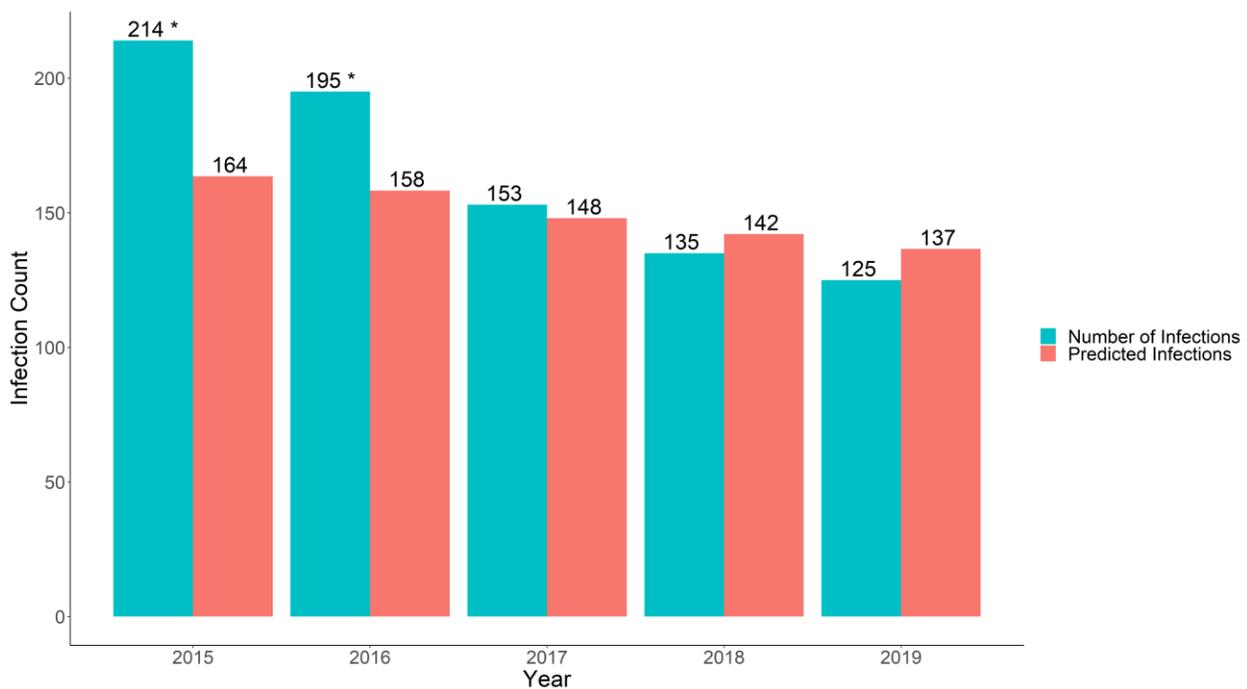


Figure 3. Surgical site infections (SSIs) associated with colon surgeries, Utah, 2015-2019

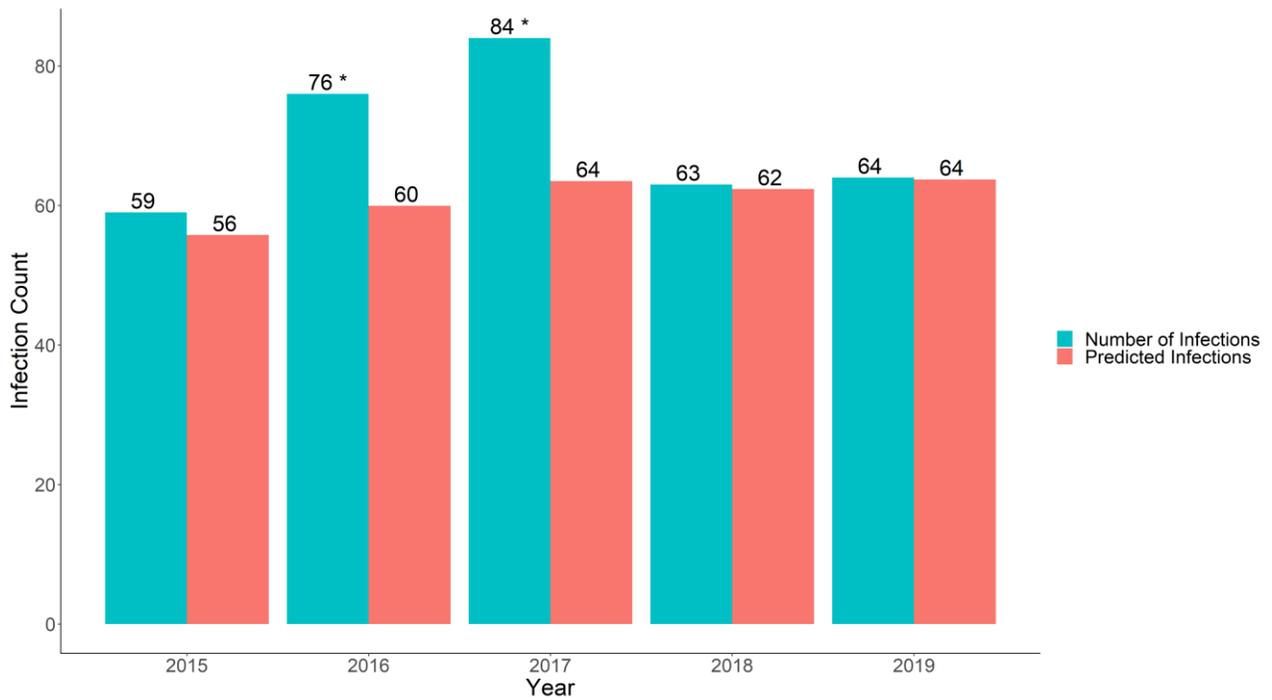


Figure 4. Surgical site infections (SSIs) associated with abdominal hysterectomy surgeries, Utah, 2015-2019

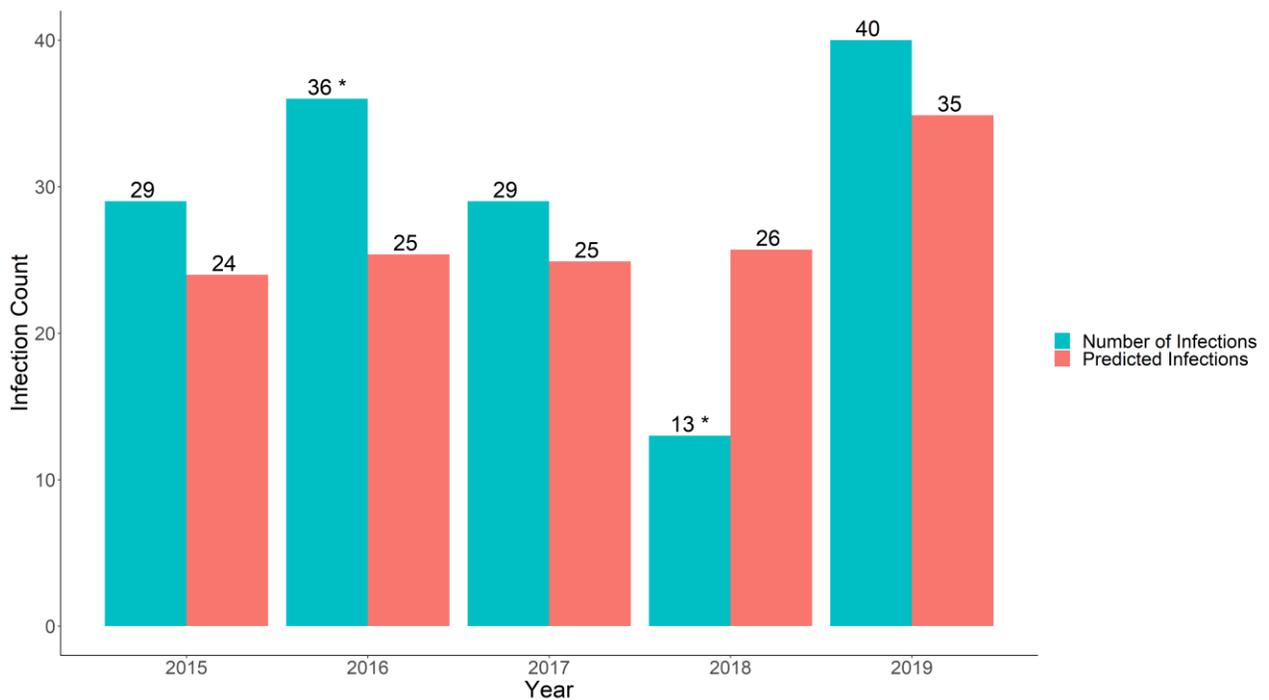


Figure 5. *Clostridioides difficile* infections (CDIs), Utah, 2015-2019

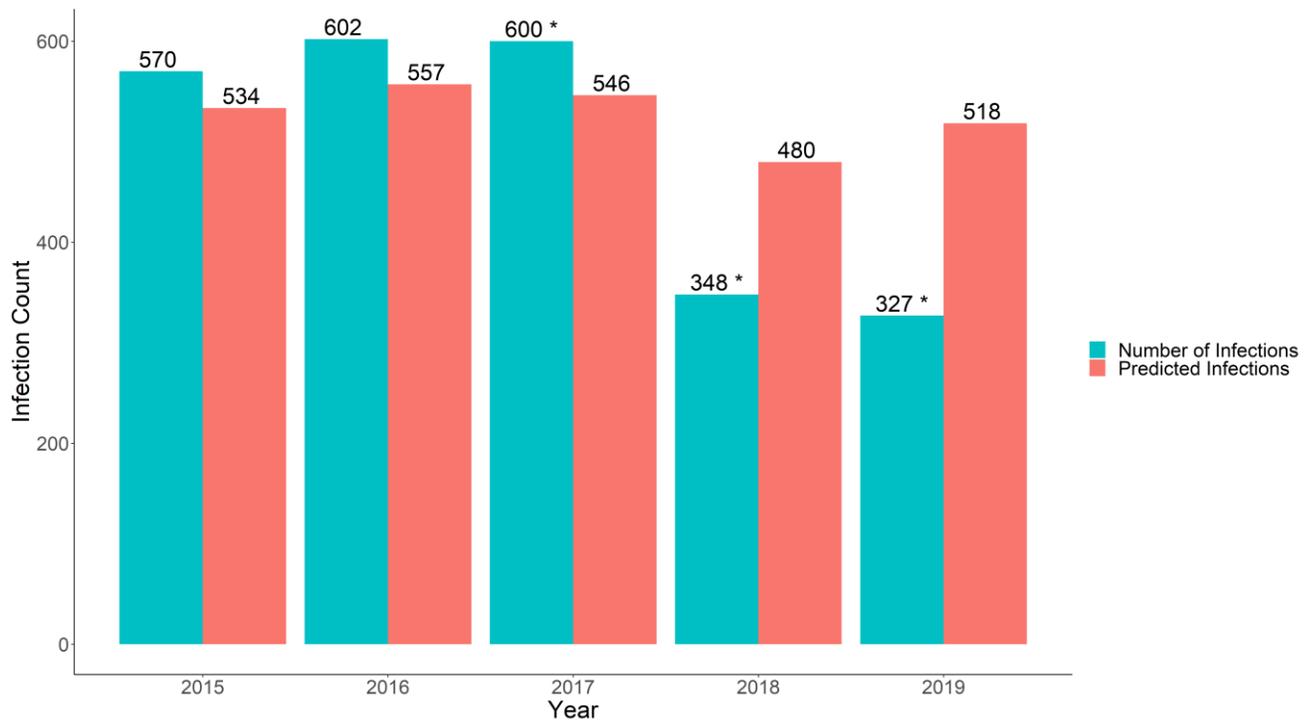


Figure 6. Methicillin-resistant *Staphylococcus aureus* (MRSA) bacteremia infections, Utah, 2015-2019

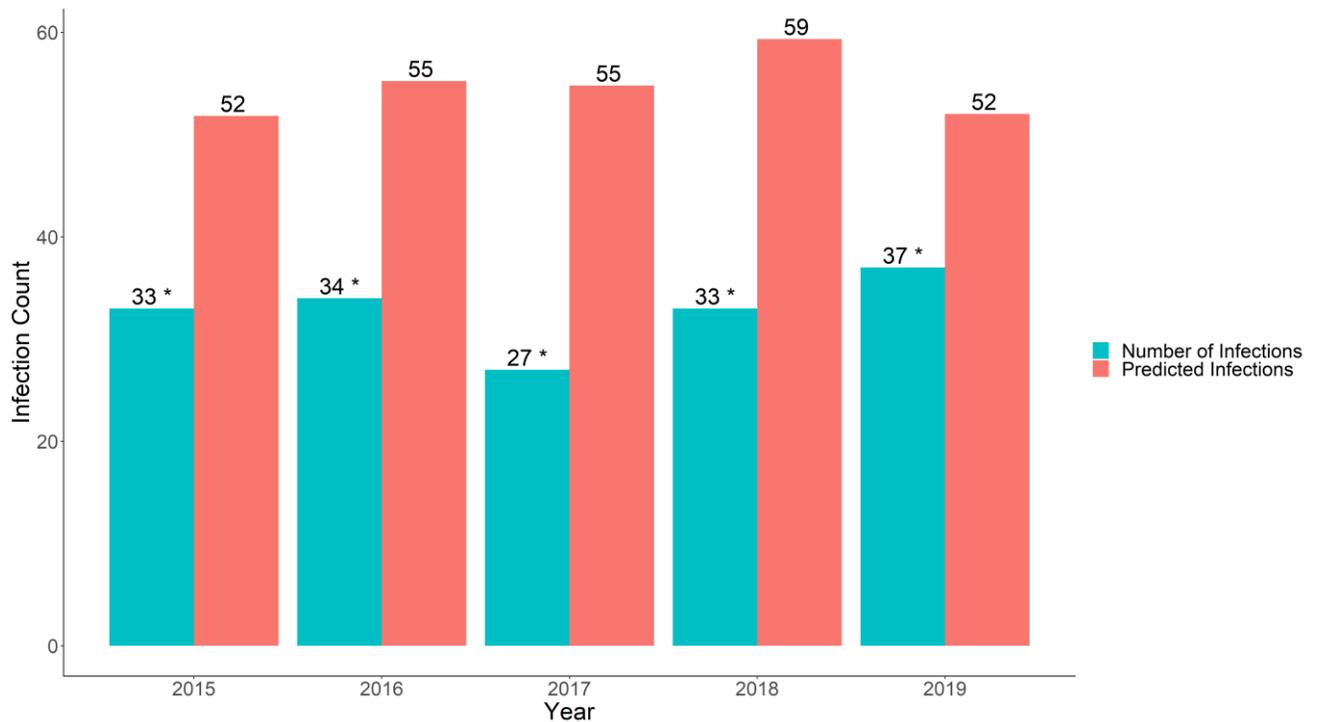


Figure 7. Dialysis infection events, Utah, 2015-2019

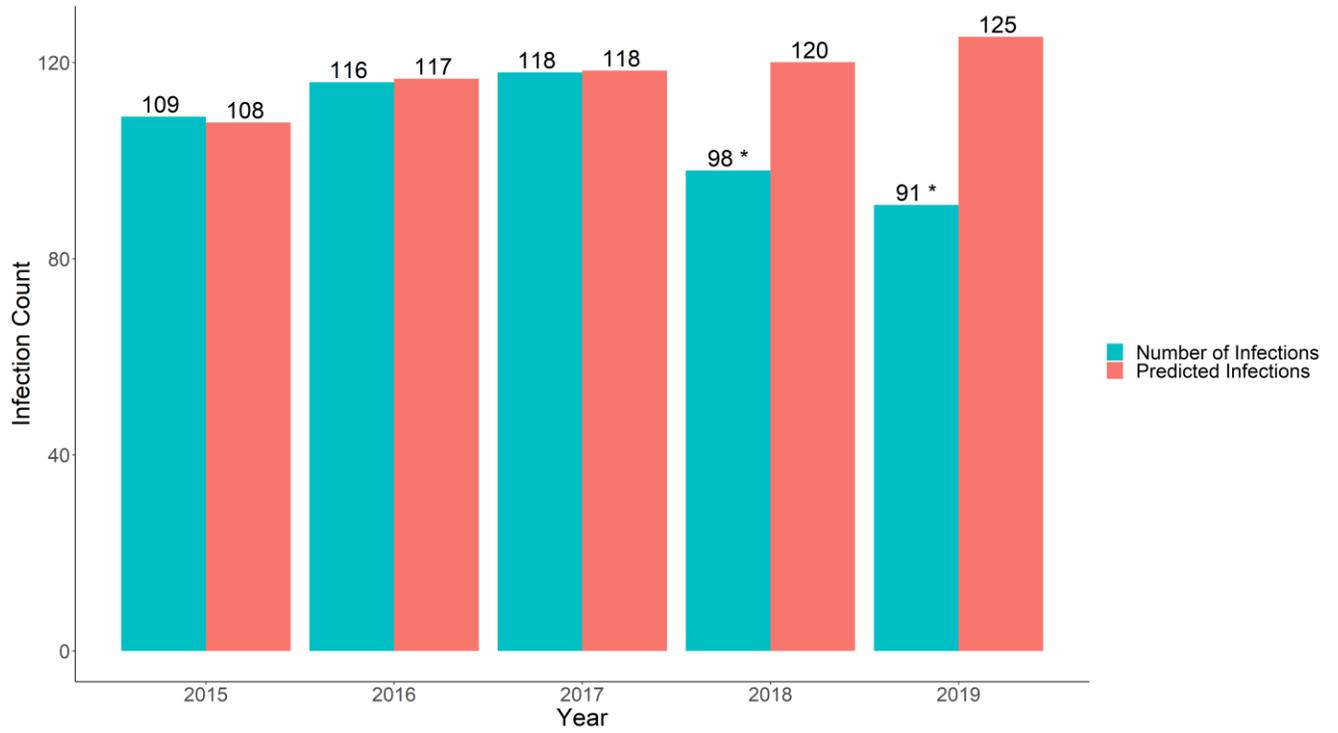


Figure 8. SIR summary of 2019 HAI data reported by Utah facilities relative to national aggregate data (2015 baseline)

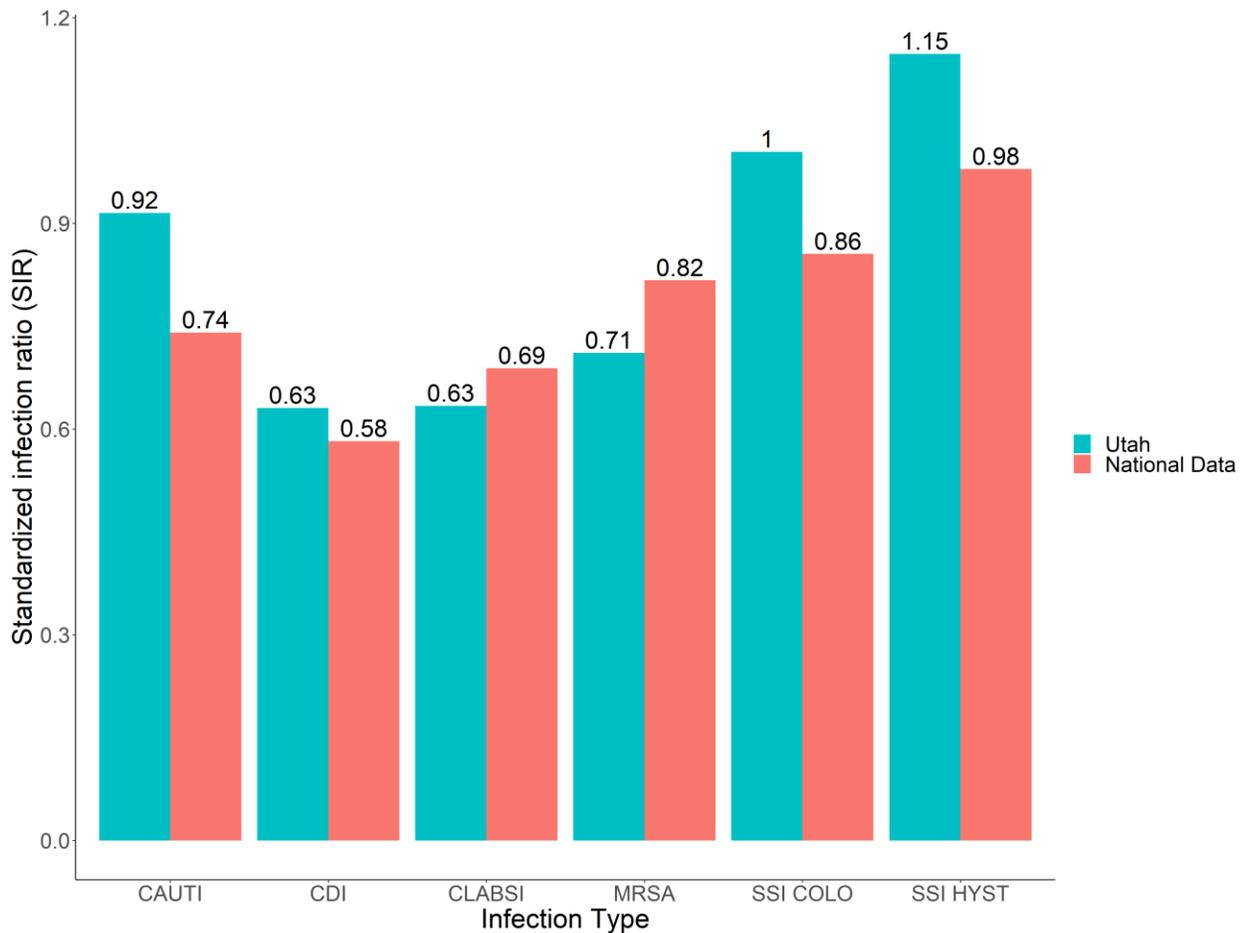
- ▼ **Central Line-associated bloodstream infections (CLABSI)**
 - ▼ CLABSI – intensive care settings in acute care facilities
 - CLABSI – non-intensive care settings in acute care facilities
 - CLABSI – newborn intensive care settings in acute care facilities
 - CLABSI – long-term acute care facilities
- **Catheter-associated urinary tract infections (CAUTI)**
 - ▼ CAUTI – intensive care settings in acute care facilities
 - ▼ CAUTI – non-intensive care settings in acute care facilities
 - CAUTI – inpatient rehabilitation settings in acute care facilities
 - ▼ CAUTI – long-term acute care facilities
- **Surgical site infections associated with colon surgery**
- **Surgical site infections associated with abdominal hysterectomy**
- ▼ ***Clostridioides difficile* infections (facility onset)**
- ▼ **Methicillin-resistant *Staphylococcus aureus* (MRSA) bacteremia infections**

Utah SIR vs. National SIR, 2019

SIR of Utah facilities relative to national aggregate data. SIR values reflect intensive, non-intensive, and newborn intensive care settings in acute care facilities and long-term acute care facilities.

+Sources: CMS data for Utah SIR; NHSN data for national SIR

Figure 9. Standardized Infection Ratio (SIR) by infection type: Utah vs. national data, 2019



Central Line-Associated Bloodstream Infections (CLABSIs)



A **CLABSI** is a serious infection that occurs when germs (usually bacteria) enter the bloodstream through an invasive device called a **central line catheter**. A catheter is a tube placed in a large vein in the neck, chest, or groin that ends at, or close to, the heart to give medication or fluids, collect blood for medical tests, or monitor blood flow.



The risk of **CLABSI** in ICU patients is **high** due to:⁹

- Insertion of multiple catheters
- Use of specific catheters associated with substantial risk
- Catheters frequently placed in emergency circumstances
- Catheters accessed repeatedly each day
- Need for catheters for extended periods of time



The non-inflation adjusted cost of **CLABSIs** varies from
\$3,700 to \$39,000
per episode

A Look at CLABSIs in Utah, 2019

- 35** adult and pediatric ICU-related CLABSIs in acute care facilities
 The number of CLABSIs in Utah acute care facilities was **41% fewer** compared to the national aggregate data
- 14** newborn ICU-related CLABSIs in acute care facilities
 The number of CLABSIs in Utah's newborn ICUs was **NOT statistically different** compared to the national aggregate data
- 25** non-ICU-related CLABSIs in Utah acute care facilities
 The number of CLABSIs in Utah acute care facilities was **32% fewer** compared to the national aggregate data
- 8** CLABSIs in long-term acute care facilities
 The number of CLABSIs in Utah's long-term acute care facilities was **50% fewer** compared to the national aggregate data

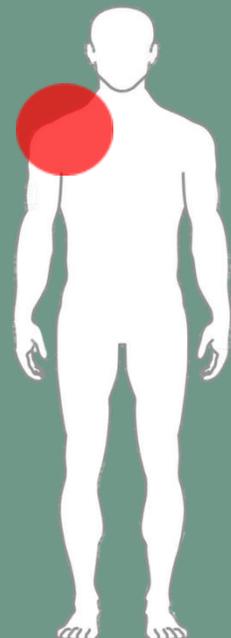


Figure 10. Central line-associated bloodstream infections in adult and pediatric intensive care units in acute care facilities, Utah, 2019⁺

Hospital	SIR	Hospital	SIR
State of Utah	▼	State of Utah	▼
Alta View Hospital	*	McKay Dee Hospital	●
American Fork Hospital	*	Mountain Point Medical Center	*
Ashley Regional Medical Center	*	Mountain View Hospital	*
Castleview Hospital	*	Mountain West Medical Center	*
Davis Hospital and Medical Center	/	Ogden Regional Medical Center	●
Cedar City Hospital	*	Park City Medical Center	*
Dixie Regional Medical Center	●	Primary Children's Hospital	▼
Huntsman Cancer Hospital	●	Riverton Hospital	*
Intermountain Medical Center	●	Salt Lake Regional Medical Center	●
Jordan Valley Medical Center	*	St. Mark's Hospital	●
Jordan Valley Medical Center West Valley Campus	*	Timpanogos Regional Hospital	/
Lakeview Hospital	*	Uintah Basin Medical Center	*
Layton Hospital	*	University of Utah Hospital	▼
LDS Hospital	●	Utah Valley Regional Medical Center	●
Logan Regional Hospital	*	Valley View Medical Center	*
Lone Peak Hospital	*		

⁺Source: CMS data.

- ▼ Statistically **FEWER** infections than the national aggregate data
- ▲ Statistically **MORE** infections than the national aggregate data
- / Predicted to have less than one infection for the year, but had one or more infections, as defined by NHSN, in 2019
- * Predicted to have less than one infection for the year, and had **ZERO** infections, as defined by NHSN, in 2019
- **NOT** statistically different from the national aggregate data

Figure 11. Central line-associated bloodstream infections in newborn intensive care units in acute care facilities, Utah, 2019⁺

Hospital	SIR
State of Utah	●
Ashley Regional Medical Center	*
Davis Hospital and Medical Center	/
Dixie Regional Medical Center	*
Intermountain Medical Center	●
Jordan Valley Medical Center	*
Logan Regional Hospital	*
McKay-Dee Hospital	*
Ogden Regional Medical Center	*
Primary Children's Hospital	●
St. Mark's Hospital	*
Timpanogos Regional Hospital	*
University of Utah Hospital	●
Utah Valley Regional Medical Center	●

⁺Source: CMS data.

- ▼ Statistically **FEWER** infections than the national aggregate data
- ▲ Statistically **MORE** infections than the national aggregate data
- / Predicted to have less than one infection for the year, but had one or more infections, as defined by NHSN, in 2019
- * Predicted to have less than one infection for the year, and had **ZERO** infections, as defined by NHSN, in 2019
- **NOT** statistically different from the national aggregate data

Figure 12. Central line-associated bloodstream infections in long-term acute care facilities, Utah, 2019⁺

Hospital	SIR
State of Utah	▼
Landmark Hospital	*
Promise Hospital	●
Specialty Hospital of Utah	●
Utah Valley Specialty Hospital	●

⁺Source: CMS data.

- ▼ Statistically **FEWER** infections than the national aggregate data
- ▲ Statistically **MORE** infections than the national aggregate data
- / Predicted to have less than one infection for the year, but had one or more infections, as defined by NHSN, in 2019
- * Predicted to have less than one infection for the year, and had **ZERO** infections, as defined by NHSN, in 2019
- **NOT** statistically different from the national aggregate data

Figure 13. Central-line-associated bloodstream infections in inpatient non-intensive care locations in acute care facilities, Utah, 2019⁺

Hospital	SIR	Hospital	SIR
State of Utah	▼	State of Utah	▼
Alta View Hospital	/	Layton Hospital	*
American Fork Hospital	*	LDS Hospital	●
Ashley Regional Medical Center	*	Logan Regional Hospital	*
Bear River Valley Hospital	*	Lone Peak Hospital	*
Beaver Valley Hospital	*	McKay Dee Hospital	*
Brigham City Community Hospital	*	Mountain Point Medical Center	*
Cache Valley Specialty Hospital	*	Mountain View Hospital	*
Castleview Hospital	*	Mountain West Medical Center	/
Cedar City Hospital	*	Ogden Regional Medical Center	/
Central Valley Medical Center	*	Park City Medical Center	*
Davis Hospital and Medical Center	*	Primary Children's Hospital	●
Delta Community Hospital	*	Riverton Hospital	*
Dixie Regional Medical Center	●	Salt Lake Regional Medical Center	*
Fillmore Community Hospital	*	Sanpete Valley Hospital	*
Garfield Memorial Hospital	*	Sevier Valley Hospital	*
Heber Valley Hospital	*	St. Mark's Hospital	●
Intermountain Medical Center	●	Timpanogos Regional Hospital	*
Jordan Valley Medical Center	*	Uintah Basin Medical Center	*
Jordan Valley Medical Center West Valley Campus	*	University of Utah Hospital	●
Lakeview Hospital	*	Utah Valley Regional Medical Center	*
		Valley View Medical Center	*

⁺Source: CMS data.

- ▼ Statistically **FEWER** infections than the national aggregate data
- ▲ Statistically **MORE** infections than the national aggregate data
- / Predicted to have less than one infection for the year, but had one or more infections, as defined by NHSN, in 2019
- * Predicted to have less than one infection for the year, and had **ZERO** infections, as defined by NHSN, in 2019
- **NOT** statistically different from the national aggregate data

Catheter-Associated Urinary Tract Infections (CAUTIs)



A urinary tract infection (UTI) is an infection that can happen anywhere along the urinary tract, including the kidneys, ureters, urinary bladder, and the urethra. A UTI that occurs in a patient or resident with a catheter is known as a catheter-associated UTI (CAUTI).

CAUTI data in 2019 were reported by:

- Long-term acute care facilities for all inpatients
- Acute care facilities for all admitted to an adult, pediatric or neonatal intensive care unit
- Acute care facilities for all admitted to an adult or pediatric medical, surgical or medical/surgical wards



According to the Centers for Disease Control and Prevention

75%

of UTIs acquired in hospitals are associated with urinary catheters

Between

15-25%



of patients receive a urinary catheter at some point in their stay

A Look at CAUTIs in Utah, 2019

56 ICU-related CAUTIs in acute care facilities



The number of CAUTIs in Utah's ICUs was 27% **fewer** compared to the national aggregate data

36 CAUTIs in inpatient non-intensive care locations in acute care facilities



The number of CAUTIs in Utah's acute care facilities was **NOT statistically different** compared to the national aggregate data

7 CAUTIs in inpatient rehabilitation facilities (IRFs)



The number of CAUTIs in Utah's IRFs was **NOT statistically different** compared to the national aggregate data

25 CAUTIs in long-term acute care facilities (LTAC)



The number of CAUTIs in Utah's LTACs was **NOT statistically different** compared to the national aggregate data

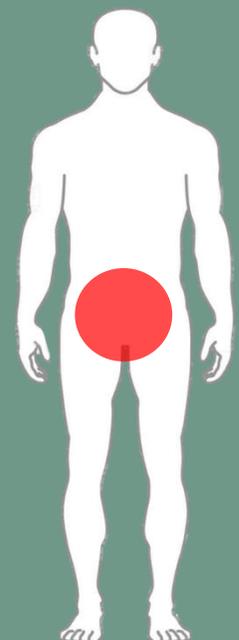


Figure 14. Catheter-associated urinary tract infections in adult and pediatric intensive care units in acute care facilities, Utah, 2019⁺

Hospital	SIR	Hospital	SIR
State of Utah		State of Utah	
Alta View Hospital	*	McKay Dee Hospital	
American Fork Hospital	/	Mountain Point Medical Center	*
Ashley Regional Medical Center	*	Mountain View Hospital	*
Castleview Hospital	*	Mountain West Medical Center	*
Cedar City Hospital	*	Ogden Regional Medical Center	
Davis Hospital and Medical Center		Park City Medical Center	*
Dixie Regional Medical Center		Primary Children's Hospital	
Huntsman Cancer Hospital		Riverton Hospital	*
Intermountain Medical Center		Salt Lake Regional Medical Center	
Jordan Valley Medical Center	/	St. Mark's Hospital	
Jordan Valley Medical Center West Valley Campus	*	Timpanogos Regional Hospital	
Lakeview Hospital	*	Uintah Basin Medical Center	*
LDS Hospital		University of Utah Hospital	
Layton Hospital	*	Utah Valley Regional Medical Center	
Logan Regional Hospital	*	Valley View Medical Center	*
Lone Peak Hospital	*		

⁺Source: CMS data.

-  Statistically **FEWER** infections than the national aggregate data
-  Statistically **MORE** infections than the national aggregate data
- / Predicted to have less than one infection for the year, but had one or more infections, as defined by NHSN, in 2019
- * Predicted to have less than one infection for the year, and had **ZERO** infections, as defined by NHSN, in 2019
-  **NOT** statistically different from the national aggregate data

Figure 15. Catheter-associated urinary tract infections in in-patient rehabilitation facilities, Utah, 2019⁺

Hospital	SIR
State of Utah	
Davis Hospital and Medical Center	N/A
Dixie Regional Medical Center	*
Health South Rehabilitation Hospital of Utah	*
Intermountain Medical Center	*
Jordan Valley Medical Center	*
McKay Dee Hospital	*
Northern Utah Rehabilitation Hospital	/
Salt Lake Regional Medical Center	*
St. Mark's Hospital	*
University of Utah Hospital	
Utah Valley Regional Medical Center	

⁺Source: CMS data.

-  Statistically **FEWER** infections than the national aggregate data
-  Statistically **MORE** infections than the national aggregate data
- / Predicted to have less than one infection for the year, but had one or more infections, as defined by NHSN, in 2019
- * Predicted to have less than one infection for the year, and had **ZERO** infections, as defined by NHSN, in 2019
-  **NOT** statistically different from the national aggregate data

Figure 16. Catheter-associated urinary tract infections in long-term acute care facilities, Utah, 2019⁺

Hospital	SIR
State of Utah	●
Landmark Hospital	●
Promise Hospital	●
Specialty Hospital of Utah	●
Utah Valley Specialty Hospital	●

⁺Source: CMS data.

- ▼ Statistically **FEWER** infections than the national aggregate data
- ▲ Statistically **MORE** infections than the national aggregate data
- / Predicted to have less than one infection for the year, but had one or more infections, as defined by NHSN, in 2019
- * Predicted to have less than one infection for the year, and had **ZERO** infections, as defined by NHSN, in 2019
- **NOT** statistically different from the national aggregate data

Figure 17. Catheter-associated urinary tract infections in inpatient non-intensive care locations in acute care facilities, Utah, 2019⁺

Hospital	SIR	Hospital	SIR
State of Utah		State of Utah	
Alta View Hospital	*	Layton Hospital	*
American Fork Hospital	*	LDS Hospital	
Ashley Regional Medical Center	*	Logan Regional Hospital	/
Bear River Valley Hospital	*	Lone Peak Hospital	*
Beaver Valley Hospital	*	McKay-Dee Hospital	*
Brigham City Community Hospital	*	Mountain Point Medical Center	/
Cache Valley Specialty Hospital	*	Mountain View Hospital	*
Castleview Hospital	*	Mountain West Medical Center	*
Cedar City Hospital	/	Ogden Regional Medical Center	
Central Valley Medical Center	*	Park City Medical Center	*
Davis Hospital and Medical Center	*	Primary Children's Hospital	/
Delta Community Hospital	*	Riverton Hospital	*
Dixie Regional Medical Center		Salt Lake Regional Medical Center	*
Fillmore Community Hospital	*	Sanpete Valley Hospital	*
Garfield Memorial Hospital	*	Sevier Valley Hospital	*
Heber Valley Hospital	*	St. Mark's Hospital	
Intermountain Medical Center		Timpanogos Regional Hospital	/
Jordan Valley Medical Center	*	Uintah Basin Medical Center	*
Jordan Valley Medical Center West Valley Campus	*	University of Utah Hospital	
Lakeview Hospital	*	Utah Valley Regional Medical Center	
		Valley View Medical Center	/

⁺Source: CMS data.

-  Statistically **FEWER** infections than the national aggregate data
-  Statistically **MORE** infections than the national aggregate data
- / Predicted to have less than one infection for the year, but had one or more infections, as defined by NHSN, in 2019
- * Predicted to have less than one infection for the year, and had **ZERO** infections, as defined by NHSN, in 2019
-  **NOT** statistically different from the national aggregate data

Surgical Site Infections (SSIs)



A surgical site infection is an infection that occurs after surgery in part of the body |where the surgery took place. Surgical site infections can sometimes be superficial infections involving the skin only. Other surgical site infections are more serious and can involve tissues under the skin, organs, or implanted material.



SSIs are the most common and most costly HAI in the U.S., which accounts for **31%** of all HAIs in hospitalized patients.¹⁰



Colon surgery is an operation performed on the large intestine. The colon (the large bowel or large intestine) is the tube-like part of the digestive tract that stores stool and pushes it out from the body. Colon surgery is performed for treatment of colon cancer, to repair colon damage, or treat disease such as diverticulitis and inflammatory bowel disease.



An **abdominal hysterectomy** is a surgical procedure in which the uterus is detached from the body through an abdominal incision. This operation is most commonly used when the uterus is enlarged, the ovaries and fallopian tubes are being removed, or when disease has spread to the pelvic cavity as in endometriosis or cancer.

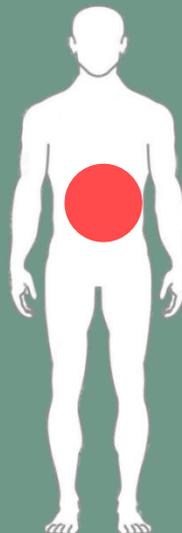
A Look at SSIs in Utah, 2019

64 SSIs associated with colon surgeries reported in Utah

The number of colon SSIs in Utah acute care facilities was **NOT statistically different** from the national aggregate data

2,088 colon surgeries performed

38 facilities met the criteria for required reporting of SSIs associated with colon surgeries



13 SSIs associated with abdominal hysterectomy reported in Utah

The number of abdominal hysterectomy SSIs was **NOT statistically different** from the national aggregate data

4,029 abdominal hysterectomy surgeries performed

38 facilities met the criteria for required reporting of SSIs associated with abdominal hysterectomies

Figure 18. Surgical site infections associated with colon surgeries in acute care facilities, Utah, 2019⁺

Hospital	SIR	Hospital	SIR
State of Utah		State of Utah	
Alta View Hospital	/	Logan Regional Hospital	
American Fork Hospital		Lone Peak Hospital	*
Ashley Regional Medical Center	*	McKay-Dee Hospital	
Bear River Valley Hospital	*	Mountain Point Medical Center	*
Beaver Valley Hospital	*	Mountain View Hospital	/
Brigham City Community Hospital	*	Mountain West Medical Center	*
Cache Valley Specialty Hospital	*	Ogden Regional Medical Center	
Castleview Hospital	/	Orem Community Hospital	*
Cedar City Hospital	*	Park City Medical Center	/
Central Valley Medical Center	*	Primary Children's Hospital	*
Davis Hospital and Medical Center	/	Riverton Hospital	
Dixie Regional Medical Center		Salt Lake Regional Medical Center	*
Heber Valley Hospital	*	Sanpete Valley Hospital	*
Huntsman Cancer Hospital		Sevier Valley Hospital	*
Intermountain Medical Center		St. Mark's Hospital	
Jordan Valley Medical Center	*	Timpanogos Regional Hospital	*
Jordan Valley Medical Center West Valley Campus	*	Uintah Basin Medical Center	*
Lakeview Hospital	*	University of Utah Hospital	
Layton Hospital	/	Utah Valley Regional Medical Center	
LDS Hospital		Valley View Medical Center	/

⁺Source: CMS data.

-  Statistically **FEWER** infections than the national aggregate data
-  Statistically **MORE** infections than the national aggregate data
- / Predicted to have less than one infection for the year, but had one or more infections, as defined by NHSN, in 2019
- * Predicted to have less than one infection for the year, and had **ZERO** infections, as defined by NHSN, in 2019
-  **NOT** statistically different from the national aggregate data

Figure 19. Surgical site infections associated with abdominal hysterectomy surgeries in acute care facilities, Utah, 2019⁺

Hospital	SIR	Hospital	SIR
State of Utah		State of Utah	
Alta View Hospital	/	Logan Regional Hospital	
American Fork Hospital		Lone Peak Hospital	*
Ashley Regional Medical Center	/	McKay-Dee Hospital	
Bear River Valley Hospital	*	Mountain Point Medical Center	*
Beaver Valley Hospital	*	Mountain View Hospital	*
Brigham City Community Hospital	*	Mountain West Medical Center	*
Cache Valley Specialty Hospital	*	Ogden Regional Medical Center	
Castleview Hospital	*	Orem Community Hospital	*
Cedar City Hospital	*	Park City Medical Center	/
Central Valley Medical Center	*	Primary Children's Hospital	*
Davis Hospital and Medical Center		Riverton Hospital	
Dixie Regional Medical Center		Salt Lake Regional Medical Center	*
Heber Valley Hospital	*	Sanpete Valley Hospital	*
Huntsman Cancer Hospital		Sevier Valley Hospital	*
Intermountain Medical Center		St. Mark's Hospital	
Jordan Valley Medical Center	/	Timpanogos Regional Hospital	
Jordan Valley Medical Center West Valley Campus	*	Uintah Basin Medical Center	*
Lakeview Hospital	*	University of Utah Hospital	
Layton Hospital	*	Utah Valley Regional Medical Center	
LDS Hospital		Valley View Medical Center	*

⁺Source: CMS data.

-  Statistically **FEWER** infections than the national aggregate data
-  Statistically **MORE** infections than the national aggregate data
- / Predicted to have less than one infection for the year, but had one or more infections, as defined by NHSN, in 2019
- * Predicted to have less than one infection for the year, and had **ZERO** infections, as defined by NHSN, in 2019
-  **NOT** statistically different from the national aggregate data

Clostridioides difficile Infections (CDIs)



Most cases of *C. difficile* infections occur in patients taking antibiotics. The elderly and people with certain medical problems have the greatest chance of acquiring *C. difficile*. *C. difficile* can live outside the human body for a very long time and may be found on things in the environment such as bed linens, bed rails, bathroom fixtures, and medical equipment. *C. difficile* infections can spread from person-to-person on contaminated equipment and on the hands of doctors, nurses, other healthcare providers, and visitors.



C. difficile causes at least
250,000
hospitalizations and
15,000
deaths every year.⁷



The Centers for Disease Control and Prevention has classified *C. difficile* as an **urgent drug-related threat** to patients in the U.S.



A Look at *C. difficile* in Utah, 2019

322 hospital-onset *C. difficile* infections were reported in acute care facilities

37% fewer *C. difficile* infections in Utah healthcare facilities compared to the national aggregate data

49 facilities met the criteria for reporting *C. difficile* infections

9 of Utah's facilities had **significantly fewer** infections compared to the national aggregate data

1 of Utah's facilities had **significantly more** infections compared to the national aggregate data

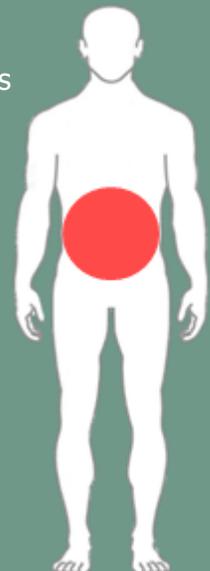


Figure 20. *C. difficile* infections in acute care facilities, Utah, 2019⁺

Hospital	SIR	Hospital	SIR
State of Utah	▼	State of Utah	▼
Alta View Hospital	●	Lone Peak Hospital	●
American Fork Hospital	▼	McKay Dee Hospital	▼
Ashley Regional Medical Center	●	Mountain Point Medical Center	●
Bear River Valley Hospital	*	Mountain View Hospital	▼
Beaver Valley Hospital	*	Mountain West Medical Center	*
Brigham City Community Hospital	*	Northern Utah Rehabilitation Hospital	●
Cache Valley Specialty Hospital	*	Ogden Regional Medical Center	●
Castleview Hospital	●	Orem Community Hospital	/
Cedar City Hospital	●	Park City Medical Center	●
Cedar Valley Medical Center	*	Primary Children's Hospital	●
Davis Hospital and Medical Center	●	Promise Hospital of Salt Lake	●
Dixie Regional Medical Center	▼	Riverton Hospital	●
Delta Community Medical Center	*	Salt Lake Regional Medical Center	●
Filmore	*	Sanpete Valley Hospital	*
Garfield Memorial Hospital	*	Sevier Valley Hospital	*
Health South Rehabilitation Hospital of Utah	●	Shriners	*
Heber Valley Hospital	*	South Davis Community Hospital	●
Huntsman Cancer Hospital	●	St. Mark's Hospital	▼
Intermountain Medical Center	▼	The Orthopedic Specialty Hospital	*
Jordan Valley Medical Center	●	Timpanogos Regional Hospital	▼
Jordan Valley Medical Center West Valley Campus	●	Uintah Basin Medical Center	●
Lakeview Hospital	●	University of Utah Hospital	▼
Landmark Hospital	●	Utah Valley Regional Medical Center	▼
Layton Hospital	●	Utah Valley Specialty Hospital	●
LDS Hospital	▲	Valley View Medical Center	●
Logan Regional Hospital	●		

⁺Source: CMS data.

- ▼ Statistically **FEWER** infections than the national aggregate data
- ▲ Statistically **MORE** infections than the national aggregate data
- / Predicted to have less than one infection for the year, but had one or more infections, as defined by NHSN, in 2019
- * Predicted to have less than one infection for the year, and had **ZERO** infections, as defined by NHSN, in 2019
- **NOT** statistically different from the national aggregate data

Methicillin-resistant *Staphylococcal aureus* (MRSA) Bacteremia Infections



MRSA is usually spread by direct contact with an infected wound or from contaminated hands, usually those of healthcare providers. Bacteremia occurs when bacteria enter the bloodstream.

This may occur through a wound or infection, or through a surgical procedure or injection. Bacteremia may cause no symptoms and resolve without treatment, or it may produce fever and other symptoms of infection. In some cases, bacteremia leads to septic shock, a potentially life-threatening condition.



Some studies comparing patients with methicillin-sensitive *Staphylococcus aureus* (MSSA) bacteremia to those with MRSA bacteremia have reported nearly twice the mortality rate, significantly longer hospital stays, and significantly higher median hospital costs for MRSA.¹¹

The Centers for Disease Control and Prevention has classified MRSA as an **urgent drug-related threat** to patients in the U.S.



A Look at MRSA Bacteremia in Utah, 2019

33 MRSA bacteremia infections were reported

▼ **28% fewer** MRSA bacteremia infections in Utah acute care facilities compared to the national aggregate data

42 facilities met the criteria for required MRSA bacteremia infections

30 facilities had **ZERO infections** in 2019

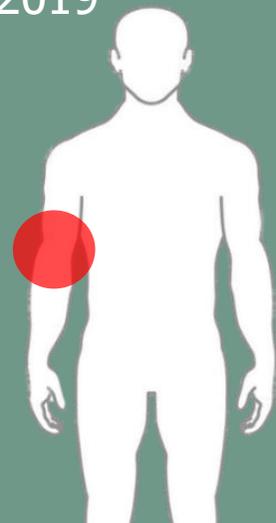


Figure 21. Methicillin-resistant *Staphylococcus aureus* bacteremia in acute care facilities, Utah, 2019⁺

Hospital	SIR
State of Utah	
Alta View Hospital	*
American Fork Hospital	*
Ashley Regional Medical Center	*
Bear River Valley Hospital	*
Beaver Valley Hospital	*
Brigham City Community Hospital	*
Cache Valley Specialty Hospital	*
Castleview Hospital	*
Cedar City Hospital	*
Central Valley Medical Center	*
Davis Hospital and Medical Center	/
Delta Community Medical Center	*
Dixie Regional Medical Center	
Fillmore Community Center Medical Center	*
Garfield Memorial Hospital	*
Health South Rehabilitation Hospital of Utah	N/A
Heber Valley Hospital	*
Huntsman Cancer Hospital	
Intermountain Medical Center	
Jordan Valley Medical Center	*
Jordan Valley Medical Center West Valley Campus	*
Lakeview Hospital	*
Landmark Hospital	N/A
LDS Hospital	
Layton Hospital	*

Hospital	SIR
State of Utah	
Logan Regional Hospital	/
Lone Peak Hospital	*
McKay Dee Hospital	
Mountain Point Medical Center	/
Mountain View Hospital	/
Mountain West Medical Center	*
Northern Utah Rehabilitation Hospital	N/A
Ogden Regional Medical Center	
Orem Community Hospital	*
Park City Medical Center	*
Primary Children's Hospital	
Promise Hospital of Salt Lake	N/A
Riverton Hospital	*
Salt Lake Regional Medical Center	/
Sanpete Valley Hospital	*
Sevier Valley Hospital	*
South Davis Community Hospital	N/A
St. Mark's Hospital	
The Orthopedic Specialty Hospital	*
Timpanogos Regional Hospital	*
Uintah Basin Medical Center	*
University of Utah Hospital	
Utah Valley Regional Medical Center	
Utah Valley Specialty Hospital	*
Valley View Medical Center	*

⁺Source: CMS data.

-  Statistically **FEWER** infections than the national aggregate data
-  Statistically **MORE** infections than the national aggregate data
- / Predicted to have less than one infection for the year, but had one or more infections, as defined by NHSN, in 2019
- * Predicted to have less than one infection for the year, and had **ZERO** infections, as defined by NHSN, in 2019
-  **NOT** statistically different from the national aggregate data

Dialysis Infection Events



The kidneys perform several critical functions:

- Clean blood
- Remove excess fluid from the body
- Produce hormones needed for important bodily functions

When the kidneys are unable to perform these functions, they can fail, resulting in the need for hemodialysis.



Hemodialysis is the process of filtering the waste products collected in the blood. Bloodstream and other types of infections are a leading cause of death among hemodialysis patients, second only to vascular disease.

Dialysis facilities are required to report:

Number of patients requiring initiation of intravenous antimicrobial therapy

Number of patients with laboratory results indicating infection in their bloodstream

Number of patients with signs and symptoms of vascular access infections (redness, swelling, and/or pus)

A Look at Dialysis Infections in Utah, 2019

91 dialysis infection events were reported

▼ 27% fewer compared to the national aggregate data

37 facilities met the criteria for required reporting of dialysis infection events

5 of Utah's facilities had **significantly fewer** infections compared to the national aggregate data

1 of Utah's facilities had **significantly more** infections compared to the national aggregate data

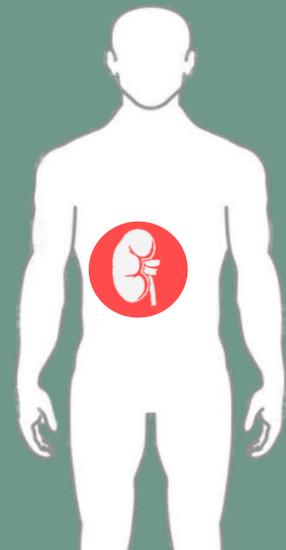


Figure 22. Dialysis event bloodstream infections, Utah, 2019⁺

Facility	SIR	Facility	SIR
State of Utah	▼	State of Utah	▼
American Fork Dialysis Center	●	Payson Regional Dialysis	●
Blue Mountain Hospital Dialysis Center	●	Pleasant View Dialysis Center	●
Bonneville Dialysis Center	●	Primary Children’s Dialysis Center	/
Castleview Dialysis Center	●	Provo Dialysis	●
Desert Valley Dialysis Clinic	▼	Sevier Valley Dialysis	●
Farmington Bay Dialysis Center	●	South Mountain Dialysis	●
Hurricane Dialysis	●	South Valley Dialysis Center	●
Intermountain Medical Center Dialysis Center	●	Tooele Valley Dialysis	●
Iron Mission Dialysis Center	●	UBMC Dialysis Roosevelt	●
Kolff Dialysis Center	●	Uintah Basin Medical Center Dialysis Vernal	●
Lakeside Dialysis Center	●	University of Utah Dialysis Program Dixie Dialysis	▼
Liberty Dialysis Layton	▼	Utah Dialysis Center	●
Liberty Dialysis Ogden	●	Utah Valley Dialysis Center	▲
Liberty Dialysis St. George	●	Wasatch Artificial Kidney Center	▼
Liberty Dialysis West Jordan	●	Weber Valley Dialysis	*
Logan Regional Dialysis Center	▼	West Bountiful Dialysis	/
Lone Peak Dialysis	●	West Valley Dialysis Clinic	●
Mark Lindsay Dialysis Center	●	Woods Cross Dialysis	●
Oquirrh Artificial Kidney Center	●		

⁺Source: CMS data.

- ▼ Statistically **FEWER** infections than the national aggregate data
- ▲ Statistically **MORE** infections than the national aggregate data
- / Predicted to have less than one infection for the year, but had one or more infections, as defined by NHSN, in 2019
- * Predicted to have less than one infection for the year, and had **ZERO** infections, as defined by NHSN, in 2019
- **NOT** statistically different from the national aggregate data

Data Quality Validation

The UDOH is required under Utah Title 26-6-31, Public Reporting of Healthcare-Associated Infections, to validate data reported to NHSN. Due to the COVID-19 pandemic, the Utah HAI/AR Program did not conduct data quality validations during 2019.

Appendix A

Understanding CLABSI and CAUTI Standardized Infection Ratio (SIR) Data in Acute Care Facilities with Intensive Care Units

The device infection event tables depict specific device-associated infections (central line-associated bloodstream infections [CLABSI] or catheter-associated urinary tract infections [CAUTI]) reported by acute care facilities within their intensive care units.

To understand the HAI report, it is important to know the meaning of each of the data elements in the table. Below is an example of a fictitious hospital's data. Each column is numbered and provides an explanation of each data element and its result.

Table A. Device infection events in acute care facilities with intensive care units, Utah, 2019

	Number of HAI device days	Number of HAI device events	Predicted number of HAI device events	Standardized Infection Ratio	95% Confidence Interval
State of Utah	#	#	#	#	#
Facility A	5,817	8	13	.62	0.26-1.21
1	2	3	4	5	6

1. Acute care facilities (hospitals) with intensive care units (ICU) are listed here by name (Facility A).
2. For each reporting facility listed, patients in ICUs with central line catheters/urinary catheters (devices) are identified every day. A device count is performed at the same time each day. Each patient with one or more central line catheters at the time the count is performed is counted as having one device day. Each patient with a urinary catheter at the time the count is performed is counted as having one device day. For example, a patient with one or more central line catheters and one urinary catheter would be counted as having one central line day and one urinary catheter day. The number of device days in this column (5,817) represents the total number of specific device days for all patients who were in Facility A's intensive care unit(s) during the year.
3. When a patient develops an HAI device-associated infection while having a device in place or within one day after removal of the device, the infection is considered a device-associated HAI if it meets the criteria set forth by NHSN. The number of HAI events in this column (8) represents the total number of specific HAIs identified in patients in Facility A's intensive care units during the year.
4. The predicted number of HAI device events is adjusted to allow facilities to be more fairly compared. Risk adjustments account for differences in facility populations and other factors

that may affect the risk of developing an HAI. A facility that uses many devices on very sick patients would be predicted to have a higher device infection rate than a facility that uses fewer devices and has healthier patients. The predicted number of HAI device events for Facility A, based on comparison to a national HAI benchmark of similar hospitals, is calculated as 13.

5. The standardized infection ratio (SIR) is a summary measure developed by NHSN to track HAIs at the national, state, local, or facility level over time. The SIR compares the *total* number of HAI device events for Facility A (8) to the *predicted* number of HAI device events (13), based on “standard population” data. For purposes of this report, the standard population is HAI data reported nationally by thousands of facilities using NHSN. The SIR for Facility A, based on comparison to a national HAI benchmark of facilities that are similar to Facility A, is calculated as 0.62. Facilities with a predicted number of HAI events less than one do not have enough device day data to reliably compare their data to the standard population. Consequently, SIRs are not provided for health care facilities with a predicted number less than one.
6. A confidence interval (CI) will be provided if a SIR was estimated for a given healthcare facility. A CI describes the uncertainty associated with the SIR estimate. Facilities with more device days will have a narrower CI, which means there is less doubt associated with the accuracy of the SIR compared to facilities with fewer device days. This is because there is more information about a facility's performance with additional device days. A 95% CI means that 95 times out of 100, the true value would be expected to fall within the range shown.

Table 1. Central line-associated bloodstream infections in adult and pediatric intensive care units in acute care facilities, Utah, 2019⁺

	Number of central line days ¹	Number of CLABSI events ²	Predicted number of CLABSI events ³	Standardized Infection Ratio ⁴	95% Confidence Interval ⁵
National	8,499,103	6,769	9,247.02	0.73	0.71-0.75
State of Utah	50,748	35	59.87	0.58	0.41-0.80
Alta View Hospital	90	0	0.06	*	*
American Fork Hospital	471	0	0.32	*	*
Ashley Regional Medical Center	55	0	0.04	*	*
Castleview Hospital	56	0	0.04	*	*
Cedar City Hospital	158	0	0.11	*	*
Davis Hospital and Medical Center	1,148	2	0.87	/	/
Dixie Regional Medical Center	2,327	1	2.02	0.50	0.02-2.44
Huntsman Cancer Hospital	1,690	2	1.66	1.21	0.20-3.99
Intermountain Medical Center	10,996	11	12.41	0.89	0.47-1.54
Jordan Valley Medical Center	579	0	0.44	*	*
Jordan Valley Medical Center West Valley Campus	665	0	0.50	*	*
Lakeview Hospital	400	0	0.30	*	*
Layton Hospital	106	0	0.07	*	*
LDS Hospital	1,218	0	1.23	0.00	0.00-2.44
Logan Regional Hospital	209	0	0.16	*	*
Lone Peak Hospital	12	0	0.01	*	*
McKay Dee Hospital	2,078	1	2.09	0.48	0.02-2.36
Mountain Point Medical Center	112	0	0.08	*	*
Mountain View Hospital	484	0	0.36	*	*
Mountain West Medical Center	84	0	0.06	*	*
Ogden Regional Medical Center	1,382	0	1.21	0.00	0.00-2.48
Park City Medical Center	48	0	0.03	*	*
Primary Children's Hospital	5,176	3	8.60	0.35	0.09-0.95
Riverton Hospital	88	0	0.07	*	*
Salt Lake Regional Medical Center	1,875	2	1.84	1.09	0.18-3.60
St. Mark's Hospital	1,763	1	1.78	0.56	0.03-2.78
Timpanogos Regional Hospital	1,253	1	0.95	/	/

Table 1 continued

	Number of central line days ¹	Number of CLABSI events ²	Predicted number of CLABSI events ³	Standardized Infection Ratio ⁴	95% Confidence Interval ⁵
National	8,499,103	6,769	9,247.02	0.73	0.71-0.75
State of Utah	50,748	35	59.87	0.58	0.41-0.80
Uintah Basin Medical Center	31	0	0.02	*	*
University of Utah Hospital	11,477	6	17.89	0.34	0.14-0.70
Utah Valley Regional Medical Center	4,559	5	4.59	1.09	0.40-2.41
Valley View Medical Center	158	0	0.11	*	*

*Source: CMS data.

See footnotes on page 40.

Table 2. Central line-associated bloodstream infections in inpatient non-intensive care locations in acute care facilities, Utah, 2019⁺

	Number of central line days ¹	Number of CLABSI events ²	Predicted number of CLABSI events ³	Standardized Infection Ratio ⁴	95% Confidence Interval ⁵
National	16,192,862	10,129	15,077.20	0.67	0.66-0.69
State of Utah	42,274	25	38.16	0.66	0.43-0.95
Alta View Hospital	205	1	0.12	/	/
American Fork Hospital	721	0	0.42	*	*
Ashley Regional Medical Center	120	0	0.07	*	*
Bear River Valley Hospital	23	0	0.01	*	*
Beaver Valley Hospital	0	0	0.00	*	*
Brigham City Community Hospital	56	0	0.03	*	*
Cache Valley Hospital	110	0	0.06	*	*
Castleview Hospital	149	0	0.09	*	*
Cedar City Hospital	319	0	0.18	*	*
Central Valley Medical Center	309	0	0.08	*	*
Davis Hospital and Medical Center	163	0	0.11	*	*
Delta Community Medical Center	62	0	0.02	*	*
Dixie Regional Medical Center	2,931	1	2.20	0.45	0.02-2.24
Fillmore Community Medical Center	119	0	0.03	*	*
Garfield Memorial Hospital	49	0	0.01	*	*
Heber Valley Medical Center	43	0	0.01	*	*
Intermountain Medical Center	11,378	7	11.09	0.63	0.28-1.25
Jordan Valley Medical Center	377	0	0.25	*	*
Jordan Valley Medical Center West Valley Campus	605	0	0.39	*	*
Lakeview Hospital	228	0	0.15	*	*
Layton Hospital	188	0	0.11	*	*
LDS Hospital	1,708	0	1.49	0.00	0.00-2.01
Logan Regional Hospital	435	0	0.28	*	*
Lone Peak Hospital	59	0	0.03	*	*
McKay Dee Hospital	844	0	0.73	*	*
Mountain Point Medical Center	112	0	0.06	*	*
Mountain View Hospital	227	0	0.15	*	*
Mountain West Medical Center	61	1	0.04	/	/
Ogden Regional Medical Center	1,102	2	0.83	/	/
Park City Medical Center	90	0	0.05	*	*
Primary Children's Hospital	5,275	6	6.00	1.00	0.41-2.08

Table 2 continued

	Number of central line days ¹	Number of CLABSI events ²	Predicted number of CLABSI events ³	Standardized Infection Ratio ⁴	95% Confidence Interval ⁵
National	16,192,862	10,129	15,077.20	0.67	0.66-0.69
State of Utah	42,274	25	38.16	0.66	0.43-0.95
Riverton Hospital	316	0	0.21	*	*
Salt Lake Regional Medical Center	234	0	0.20	*	*
Sanpete Valley Hospital	87	0	0.02	*	*
Sevier Valley Medical Center	83	0	0.05	*	*
St. Mark's Hospital	1,294	1	1.13	0.89	0.04-4.38
Timpanogos Regional Hospital	804	0	0.52	*	*
Uintah Basin Medical Center	44	0	0.03	*	*
University of Utah Hospital	10,602	6	10.34	0.58	0.24-1.21
Utah Valley Regional Medical Center	423	0	0.37	*	*
Valley View Medical Center	319	0	0.18	*	*

+Source: CMS data.
See footnotes on page 40.

Table 3. Central line-associated bloodstream infections in newborn intensive care units in acute care facilities, Utah, 2019⁺

	Number of central line days ¹	Number of CLABSI events ²	Predicted number of CLABSI events ³	Standardized Infection Ratio ⁴	95% Confidence Interval ⁵
National	1,323,936	1,111	1,824.75	0.61	0.58-0.65
State of Utah	12,120	14	15.43	0.91	0.52-1.49
Ashley Regional Medical Center	2	0	0.00	*	*
Davis Hospital & Medical Center	104	1	0.15	/	/
Dixie Regional Medical Center	290	0	0.40	*	*
Intermountain Medical Center	1,420	1	2.07	0.48	0.02-2.39
Jordan Valley Medical Center	300	0	0.24	*	*
Logan Regional Hospital	90	0	0.06	*	*
McKay Dee Hospital	732	0	0.94	*	*
Ogden Regional Medical Center	220	0	0.29	*	*
Primary Children's Hospital	4,993	8	6.27	1.28	0.59-2.42
St. Mark's Hospital	463	0	0.47	*	*
Timpanogos Regional Hospital	381	0	0.39	*	*
University of Utah Hospital	1,239	2	1.81	1.10	0.19-3.65
Utah Valley Regional Medical Center	1,886	2	2.33	0.86	0.14-2.83

⁺Source: CMS data.

See footnotes on page 41.

Table 4. Catheter-associated urinary tract infections in adult and pediatric intensive care units in acute care facilities, Utah, 2019⁺

	Number of catheter days ¹	Number of CAUTI events ²	Predicted number of CAUTI events ³	Standardized Infection Ratio ⁴	95% Confidence Interval ⁵
National	9,250,055	8,436	12,590.12	0.67	0.66-0.68
State of Utah	56,073	56	76.56	0.73	0.56-0.94
Alta View Hospital	270	0	0.15	*	*
American Fork Hospital	449	1	0.33	/	/
Ashley Regional Medical Center	152	0	0.08	*	*
Castleview Hospital	170	0	0.09	*	*
Cedar City Hospital	241	0	0.13	*	*
Davis Hospital and Medical Center	1,609	1	1.44	0.69	0.03-3.42
Dixie Regional Medical Center	3,610	2	3.23	0.62	0.10-2.04
Huntsman Cancer Hospital	2,158	0	1.98	0.00	0.00-1.52
Intermountain Medical Center	11,631	13	19.71	0.66	0.37-1.10
Jordan Valley Medical Center	761	1	0.56	/	/
Jordan Valley Medical Center West Valley Campus	1,042	0	0.76	*	*
Lakeview Hospital	483	0	0.36	*	*
Layton Hospital	75	0	0.04	*	*
LDS Hospital	1,468	0	1.50	0.00	0.00-2.00
Logan Regional Hospital	486	0	0.36	*	*
Lone Peak Hospital	57	0	0.03	*	*
McKay Dee Hospital	2,434	2	2.49	0.80	0.13-2.66
Mountain Point Medical Center	226	0	0.12	*	*
Mountain View Hospital	777	0	0.57	*	*
Mountain West Medical Center	147	0	0.08	*	*
Ogden Regional Medical Center	1,671	1	1.39	0.72	0.04-3.54
Park City Medical Center	94	0	0.05	*	*
Primary Children's Hospital	2,766	2	4.48	0.45	0.07-1.48
Riverton Hospital	243	0	0.18	*	*
Salt Lake Regional Medical Center	1,725	1	1.83	0.55	0.03-2.69
St. Mark's Hospital	2,417	4	2.47	1.62	0.51-3.91
Timpanogos Regional Hospital	1,373	3	1.02	2.93	0.75-7.98
Uintah Basin Medical Center	205	0	0.11	*	*
University of Utah Hospital	11,986	17	25.65	0.66	0.40-1.04
Utah Valley Regional Medical Center	5,106	8	5.22	1.53	0.71-2.91
Valley View Medical Center	241	0	0.13	*	*

⁺Source: CMS data.

See footnotes on page 41.

Table 5. Catheter-associated urinary tract infections in inpatient non-intensive care locations in acute care facilities, Utah, 2019⁺

	Number of catheter days ¹	Number of CAUTI events ²	Predicted number of CAUTI events ³	Standardized Infection Ratio ⁴	95% Confidence Interval ⁵
National	13,919,501	10,962	13,592.50	0.81	0.79-0.82
State of Utah	36,978	37	33.78	1.10	0.78-1.49
Alta View Hospital	496	0	0.24	*	*
American Fork Hospital	843	0	0.55	*	*
Ashley Regional Medical Center	270	0	0.13	*	*
Bear River Valley Hospital	89	0	0.04	*	*
Beaver Valley Hospital	62	0	0.04	*	*
Brigham City Community Hospital	260	0	0.13	*	*
Cache Valley Hospital	170	0	0.08	*	*
Castleview Hospital	920	0	0.45	*	*
Cedar City Hospital	411	1	0.20	/	/
Central Valley Medical Center	974	0	0.64	*	*
Davis Hospital and Medical Center	561	0	0.45	*	*
Delta Community Medical Center	92	0	0.06	*	*
Dixie Regional Medical Center	2,828	3	2.37	1.27	0.32-3.45
Fillmore Community Medical Center	38	0	0.02	*	*
Garfield Memorial Hospital	74	0	0.05	*	*
Heber Valley Medical Center	224	0	0.15	*	*
Intermountain Medical Center	8,717	14	10.53	1.33	0.76-2.18
Jordan Valley Medical Center	756	0	0.49	*	*
Jordan Valley Medical Center West Valley Campus	757	0	0.51	*	*
Lakeview Hospital	441	0	0.29	*	*
Layton Hospital	166	0	0.08	*	*
LDS Hospital	1,600	4	1.51	2.65	0.84-6.39
Logan Regional Hospital	810	1	0.55	/	/
Lone Peak Hospital	301	0	0.15	*	*
McKay Dee Hospital	446	0	0.45	*	*
Mountain Point Medical Center	350	1	0.17	/	/
Mountain View Hospital	493	0	0.32	*	*
Mountain West Medical Center	409	0	0.20	*	*
Ogden Regional Medical Center	1,502	2	1.15	1.73	0.29-5.73
Park City Medical Center	173	0	0.09	*	*
Primary Children's Hospital	535	1	0.48	/	/
Riverton Hospital	625	0	0.41	*	*
Salt Lake Regional Medical Center	271	0	0.26	*	*

Table 5 continued

	Number of catheter days ¹	Number of CAUTI events ²	Predicted number of CAUTI events ³	Standardized Infection Ratio ⁴	95% Confidence Interval ⁵
National	13,919,501	10,962	13,592.50	0.81	0.79-0.82
State of Utah	36,978	37	33.78	1.10	0.78-1.49
Sanpete Valley Hospital	50	0	0.03	*	*
Sevier Valley Medical Center	358	0	0.18	*	*
St. Mark's Hospital	2,119	1	1.93	0.52	0.03-2.55
Timpanogos Regional Hospital	921	1	0.65	/	/
Uintah Basin Medical Center	400	0	0.20	*	*
University of Utah Hospital	5,721	7	7.05	0.99	0.43-1.97
Utah Valley Regional Medical Center	334	0	0.32	*	*
Valley View Medical Center	411	1	0.20	/	/

+Source: CMS data.

See footnotes on page 42.

Footnotes

Table 1. Central line-associated bloodstream infections in adult and pediatric intensive care units in acute care facilities, Utah, 2019

/ Predicted to have less than one infection for the year, but had one or more infections, as defined by NHSN, in 2019.

* Predicted to have less than one infection for the year, and reported ZERO infections, as defined by NHSN, in 2019.

- ¹ Number of central line days: The total number of days that a patient has a central line.
- ² Number of CLABSI events: The total number of central line-associated bloodstream infections reported per year.
- ³ Predicted number of central line-associated bloodstream infection events: The number of central line-associated bloodstream infection events anticipated to occur based on historical data of comparable ICUs.
- ⁴ Standardized Infection Ratio: Compares the total number of central line-associated bloodstream infection events in a hospital's ICU to a national benchmark. Rates are adjusted based on the type and size of a hospital or ICU.
- ⁵ Confidence interval: A 95% confidence interval means that if the sampling of rates was repeated over more periods of time, 95 times out of 100, the true value would be expected to fall within the range shown.

Table 2. Central line-associated bloodstream infections in inpatient non-intensive care locations in acute care facilities, Utah, 2019

/ Predicted to have less than one infection for the year, but had one or more infections, as defined by NHSN, in 2019.

* Predicted to have less than one infection for the year, and reported ZERO infections, as defined by NHSN, in 2019.

- ¹ Number of central line days: The total number of days that a patient has a central line.
- ² Number of CLABSI events: The total number of central line-associated bloodstream infections reported per year.
- ³ Predicted number of central line-associated bloodstream infection events: The number of central line-associated bloodstream infection events anticipated to occur based on historical data of comparable non-ICU locations.
- ⁴ Standardized Infection Ratio: Compares the total number of central line-associated bloodstream infection events in a hospital's non-ICU locations to a national benchmark. Rates are adjusted based on the type and size of a hospital or non-ICU locations.
- ⁵ Confidence interval: A 95% confidence interval means that if the sampling of rates was repeated over more periods of time, 95 times out of 100, the true value would be expected to fall within the range shown.

Table 3. Central line-associated bloodstream infections in newborn intensive care units in acute care facilities, Utah, 2019

/ Predicted to have less than one infection for the year, but had one or more infections, as defined by NHSN, in 2019.

* Predicted to have less than one infection for the year, and reported ZERO infections, as defined by NHSN, in 2019.

¹ Number of central line days: The total number of days that a patient has a central line.

² Number of central line-associated bloodstream infection events: The total number of central line-associated bloodstream infections reported per year.

³ Predicted number of central line-associated bloodstream infection events: The number of central line-associated bloodstream infection events anticipated to occur based on historical data of comparable newborn ICUs.

⁴ Standardized Infection Ratio: Compares the total number of central line-associated bloodstream infection events in a hospital's newborn ICU to a national benchmark. Rates are adjusted based on the type and size of a hospital or newborn ICU.

⁵ Confidence interval: A 95% confidence interval means that if the sampling of rates was repeated over more periods of time, 95 times out of 100, the true value would be expected to fall within the range shown.

Table 4. Catheter-associated urinary tract infections in adult and pediatric intensive care units in acute care facilities, Utah, 2019

/ Predicted to have less than one infection for the year, but had one or more infections, as defined by NHSN, in 2019.

* Predicted to have less than one infection for the year, and reported ZERO infections, as defined by NHSN, in 2019.

¹ Number of catheter days: The total number of days that a patient has a urinary catheter.

² Number of CAUTI events: The total number of catheter-associated urinary tract infections reported per year.

³ Predicted number of CAUTI events: The number of catheter-associated urinary tract infections anticipated to occur based on historical data of comparable ICUs.

⁴ Standardized Infection Ratio: Compares the total number of catheter-associated urinary tract infections in a hospital's ICU to a national benchmark. Rates are adjusted based on the type and size of a hospital or ICU.

⁵ Confidence interval: A 95% confidence interval means that if the sampling of rates was repeated over more periods of time, 95 times out of 100, the true value would be expected to fall within the range shown.

Table 5. Catheter-associated urinary tract infections in inpatient non-intensive care locations in acute care facilities, Utah, 2019

/ Predicted to have less than one infection for the year, but had one or more infections, as defined by NHSN, in 2019.

* Predicted to have less than one infection for the year, and reported ZERO infections, as defined by NHSN, in 2019.

¹ Number of catheter days: The total number of days that a patient has a urinary catheter.

² Number of CAUTI events: The total number of catheter-associated urinary tract infections reported per year.

³ Predicted number of CAUTI events: The number of catheter-associated urinary tract infections anticipated to occur based on historical data of comparable non-ICU locations.

⁴ Standardized Infection Ratio: Compares the total number of catheter-associated urinary tract infections in a hospital's ICU to a national benchmark. Rates are adjusted based on the type and size of a hospital or non-ICU locations.

⁵ Confidence interval: A 95% confidence interval means that if the sampling of rates was repeated over more periods of time, 95 times out of 100, the true value would be expected to fall within the range shown.

Appendix B

Understanding Surgical Site Infection (SSI) Data in Acute Care Facilities

SSI events depict infections associated with specific surgical procedures, colon, and abdominal hysterectomy surgeries, reported by acute care facilities.

To understand the HAI report, it is important to know what each of the table’s data elements mean. Below is an example of a fictitious hospital’s data. Each column is numbered and provides an explanation of each data element and its result.

Table B. Surgical site infection events in acute care facilities, Utah, 2019

	Number of surgical procedures	Number of SSI events	Predicted number of SSI events	Standardized Infection Ratio	95% Confidence Interval
State of Utah	#	#	#	#	#
Facility B	5,817	8	13	.62	0.26-1.21
1	2	3	4	5	6

1. Only acute care facilities (hospitals) performing colon and abdominal hysterectomy surgical procedures are listed here by name (Facility B).
2. For each reporting facility listed, the number listed (5,817) is the total number of colon/abdominal hysterectomy surgical procedures performed.
3. The number of SSI events in this column (8) represents the total number of colon/abdominal hysterectomy surgical site infections (SSIs) identified in patients who met the criteria set by NHSN who were in Facility B during the reporting period.
4. The predicted number of SSI events is adjusted to allow facilities to be more fairly compared. Risk adjustments account for differences in patient populations in terms of severity of illness and other factors that may affect the risk of developing an HAI. A facility that performs many procedures on very sick patients would be predicted to have a higher SSI rate than a hospital that performs fewer procedures and has healthier patients. The predicted number of SSI events for Facility B, based on comparison to a national HAI benchmark of similar facilities, is calculated as 13.
5. The standardized infection ratio (SIR) is a summary measure developed by NHSN to track HAIs at the national, state, local, or facility level over time. The SIR compares the *total* number of SSI events for Facility B (8) to the *predicted* number of SSI events (13) based on “standard population” data. For purposes of this report, the standard population is HAI data reported nationally by thousands of facilities using NHSN. The SIR for Facility B, based on comparison to a national HAI benchmark of facilities that are similar to Facility B, is

calculated as 0.62. Facilities with a predicted number of HAI events less than one do not have enough data to reliably compare their data to the standard population. Consequently, SIRs are not provided for healthcare facilities with a predicted number less than one.

6. A confidence interval (CI) will be provided if a SIR was estimated for a given facility. A CI describes the uncertainty associated with the SIR estimate. Facilities performing more procedures will have a narrower CI, which means there is less doubt associated with the accuracy of the SIR compared to facilities performing fewer procedures. This is because there is more information about a facility's performance with additional procedures. A 95% CI means that 95 times out of 100, the true value would be expected to fall within the range shown.

Table 6. Surgical site infections associated with colon surgeries in acute care facilities, Utah, 2019⁺

	Number of colon surgeries ¹	Number of colon events ²	Predicted number of colon events ³	Standardized Infection Ratio ⁴	95% Confidence Interval ⁵
National	327,573	7,256	8,482.25	0.85	0.84-0.88
State of Utah	2,116	64	63.72	1.00	0.78-1.27
Alta View Hospital	26	3	0.69	/	/
American Fork Hospital	58	1	1.44	0.70	0.03-3.43
Ashley Regional Medical Center	5	0	0.12	*	*
Bear River Valley Hospital	0	0	0.00	*	*
Beaver Valley Hospital	0	0	0.00	*	*
Brigham City Community Hospital	5	0	0.12	*	*
Cache Valley Hospital	2	0	0.05	*	*
Castleview Hospital	22	3	0.53	/	/
Cedar City	28	0	0.72	*	*
Central Valley Medical Center	0	0	0.00	*	*
Davis Hospital and Medical Center	31	1	0.83	/	/
Dixie Regional Medical Center	179	7	4.55	1.54	0.67-3.04
Heber Valley Medical Center	3	0	0.08	*	*
Huntsman Cancer Hospital	253	12	11.88	1.01	0.55-1.72
Intermountain Medical Center	242	0	7.62	0.00	0.00-0.39
Jordan Valley Medical Center	24	0	0.71	*	*
Jordan Valley Medical Center West Valley Campus	16	0	0.50	*	*
Lakeview Hospital	35	0	0.85	*	*
Layton Hospital	19	2	0.52	/	/
LDS Hospital	158	5	4.29	1.16	0.43-2.58
Logan Regional Hospital	55	2	1.40	1.43	0.24-4.73
Lone Peak Hospital	11	0	0.30	*	*
McKay Dee Hospital	167	5	4.57	1.09	0.40-2.42
Mountain Point Medical Center	10	0	0.27	*	*
Mountain View Hospital	17	1	0.43	/	/
Mountain West Medical Center	3	0	0.08	*	*
Ogden Regional Medical Center	72	3	2.03	1.48	0.38-4.02

Table 6 continued

	Number of colon surgeries ¹	Number of colon events ²	Predicted number of colon events ³	Standardized Infection Ratio ⁴	95% Confidence Interval ⁵
National	327,573	7,256	8,482.25	0.85	0.84-0.88
State of Utah	2,116	64	63.72	1.00	0.78-1.27
Orem Community Hospital	0	0	0.00	*	*
Park City Medical Center	14	3	0.33	/	/
Primary Children's Hospital	5	0	0.26	*	*
Riverton Hospital	37	0	1.03	0.00	0.00-2.92
Salt Lake Regional Medical Center	12	0	0.32	*	*
Sanpete Valley Hospital	3	0	0.10	*	*
Sevier Valley Medical Center	15	0	0.33	*	*
St. Mark's Hospital	220	3	5.59	0.54	0.14-1.46
Timpanogos Regional Hospital	35	0	0.98	*	*
Uintah Basin Medical Center	1	0	0.02	*	*
University of Utah Hospital	141	9	4.52	1.99	0.97-3.66
Utah Valley Regional Medical Center	165	4	4.94	0.81	0.26-1.95
Valley View Medical Center	28	0	0.72	*	*

*Source: Utah data is CMS; National data is NHSN.
See footnotes on page 49.

Table 7. Surgical site infections associated with abdominal hysterectomy surgeries in acute care facilities, Utah, 2019⁺

	Number of abdominal hyst ¹	Number of abdominal hyst events ²	Predicted number of abdominal hyst events ³	Standardized Infection Ratio ⁴	95% Confidence Interval ⁵
National	334,530	2,157	2,202.64	0.98	0.94-1.02
State of Utah	4,045	40	34.87	1.15	0.83-1.55
Alta View Hospital	69	1	0.53	/	/
American Fork Hospital	172	0	1.35	0.00	0.00-2.23
Ashley Regional Medical Center	54	1	0.44	/	/
Bear River Valley Hospital	0	0	0.00	*	*
Beaver Valley Hospital	0	0	0.00	*	*
Brigham City Community Hospital	23	0	0.18	*	*
Cache Valley Hospital	14	0	0.11	*	*
Castleview Hospital	10	0	0.10	*	*
Cedar City	16	0	0.12	*	*
Central Valley Medical Center	1	0	0.01	*	*
Davis Hospital and Medical Center	249	2	2.01	1.00	0.17-3.30
Dixie Regional Medical Center	254	3	1.92	1.56	0.40-4.25
Heber Valley Medical Center	39	0	0.32	*	*
Huntsman Cancer Hospital	189	3	2.92	1.03	0.26-2.80
Intermountain Medical Center	416	3	3.67	0.82	0.21-2.22
Jordan Valley Medical Center	9	1	0.06	/	/
Jordan Valley Medical Center West Valley Campus	2	0	0.02	*	*
Lakeview Hospital	17	0	0.13	*	*
Layton Hospital	14	0	0.11	*	*
LDS Hospital	269	1	2.02	0.50	0.02-2.45
Logan Regional Hospital	187	3	1.37	2.20	0.56-5.98
Lone Peak Hospital	45	0	0.35	*	*
McKay Dee Hospital	160	3	1.42	2.12	0.54-5.77
Mountain Point Medical Center	5	0	0.04	*	*

Table 7 continued

	Number of abdominal hyst ¹	Number of abdominal hyst events ²	Predicted number of abdominal hyst events ³	Standardized Infection Ratio ⁴	95% Confidence Interval ⁵
National	334,530	2,157	2,202.64	0.98	0.94-1.02
State of Utah	4,045	40	34.87	1.15	0.83-1.55
Mountain View Hospital	32	0	0.27	*	*
Mountain West Medical Center	4	0	0.03	*	*
Ogden Regional Medical Center	107	3	1.07	2.80	0.71-7.62
Orem Community Hospital	52	0	0.38	*	*
Park City Medical Center	37	2	0.27	/	/
Primary Children's Hospital	0	0	0.00	*	*
Riverton Hospital	211	5	1.82	2.74	1.00-6.08
Salt Lake Regional Medical Center	7	0	0.06	*	*
Sanpete Valley Hospital	2	0	0.02	*	*
Sevier Valley Medical Center	32	0	0.25	*	*
St. Mark's Hospital	630	2	5.28	0.38	0.06-1.25
Timpanogos Regional Hospital	147	0	1.11	0.00	0.00-2.69
Uintah Basin Medical Center	27	0	0.26	*	*
University of Utah Hospital	197	4	1.79	2.24	0.71-5.41
Utah Valley Regional Medical Center	330	3	2.95	1.02	0.26-2.76
Valley View Medical Center	16	0	0.12	*	*

⁺Source: Utah data is CMS; National data is NHSN.
See footnotes on page 49.

Footnotes

Table 6. Surgical site infections associated with colon surgeries in acute care facilities, Utah, 2019

/ Predicted to have less than one infection for the year, but had one or more infections, as defined by NHSN, in 2019.

* Predicted to have less than one infection for the year, and reported ZERO infections, as defined by NHSN, in 2019.

¹ Number of colon surgeries: The total number of colon surgeries reported per year.

² Number of colon events: The total number of SSI infections associated with colon surgeries reported per year.

³ Predicted number of colon events: The number of SSI infections associated with colon surgeries anticipated to occur based on historical data of comparable acute care facilities.

⁴ Standardized Infection Ratio: Compares the total number of colon surgeries in a hospital's ICU to a national benchmark. Rates are adjusted based on the type and size of a hospital or ICU.

⁵ Confidence interval: A 95% confidence interval means that if the sampling of rates was repeated over more periods of time, 95 times out of 100, the true value would be expected to fall within the range shown.

Table 7. Surgical site infections associated with abdominal hysterectomy surgeries in acute care facilities, Utah, 2019

/ Predicted to have less than one infection for the year, but had one or more infections, as defined by NHSN, in 2019.

* Predicted to have less than one infection for the year, and reported ZERO infections, as defined by NHSN, in 2019.

¹ Number of abdominal hysterectomies: The total number of abdominal hysterectomies reported per year.

² Number of abdominal hyst events: The total number of SSI infections associated with abdominal hysterectomies reported per year.

³ Predicted number of abdominal hyst events: The number of abdominal hysterectomies anticipated to occur based on historical data of comparable acute care facilities.

⁴ Standardized Infection Ratio: Compares the total number of abdominal hysterectomies in a hospital's ICU to a national benchmark. Rates are adjusted based on the type and size of a hospital or ICU.

⁵ Confidence interval: A 95% confidence interval means that if the sampling of rates was repeated over more periods of time, 95 times out of 100, the true value would be expected to fall within the range shown.

Appendix C

Understanding *C. difficile* and MRSA Bacteremia Data in Acute Care Facilities

The tables depict *Clostridioides difficile* infections (CDI) and Methicillin-resistant *Staphylococcus aureus* (MRSA) bacteremia infections reported by acute care facilities.

In order to understand the HAI report, it is important to know what each of the table's data elements mean. Below is an example of a fictitious hospital's data. Each column is numbered and provides an explanation of each data element and its result.

Table C. Bacterial infection events in acute care facilities, Utah, 2019

	Number of patient days	Number of infections	Predicted number of infections	Standardized Infection Ratio	95% Confidence Interval
State of Utah	#	#	#	#	#
Facility C	5,817	8	13	0.62	0.26-1.21
1	2	3	4	5	6

1. Acute care facilities are listed here by name (Facility C).
2. For each reporting facility listed, the number listed (5,817) is the total number of days patients have stayed at that facility.
3. When a patient develops a CDI or MRSA bacteremia infection, the infection is considered an HAI if it meets the criteria set forth by NHSN. The number of HAI events in this column (8) represents the total number of specific HAIs identified in patients in Facility C during the year.
4. The predicted number of infections is adjusted to allow facilities to be more fairly compared. Risk adjustments account for differences in patient populations in terms of severity of illness and other factors that may affect the risk of developing an HAI. A facility that generally has more severely ill patients would be predicted to have a higher rate than a facility that has healthier patients. The predicted number of infections for Facility C, based on comparison to a national HAI benchmark of similar facilities, is calculated as 13.
5. The standardized infection ratio (SIR) is a summary measure developed by NHSN to track HAIs at the national, state, local, or facility level over time. The SIR compares the *total* number of infections for Facility C (8) to the *predicted* number of infections (13), based on "standard population" data.

For purposes of this report, the standard population is HAI data reported nationally by thousands of facilities using NHSN. The SIR for Facility C, based on comparison to a national HAI benchmark of facilities that are similar to Facility C, is calculated as 0.62. Facilities with a predicted number of HAI events less than one do not have enough data to reliably

compare their data to the standard population. Consequently, SIRs are not provided for healthcare facilities with a predicted number less than one.

6. A confidence interval (CI) will be provided if a SIR was estimated for a given facility. A CI describes the uncertainty associated with the SIR estimate. Facilities performing with more patient days will have a narrower CI, which means there is less doubt associated with the accuracy of the SIR compared to facilities performing fewer procedures. This is because there is more information about a facility's performance with additional patient days. A 95% CI means that 95 times out of 100, the true value would be expected to fall within the range shown.

Table 8. *C. difficile* infections in acute care facilities, Utah, 2019⁺

	Number of patient days ¹	Number of hospital onset <i>C. difficile</i> events ²	Predicted number of hospital onset <i>C. difficile</i> events ³	Standardized Infection Ratio ⁴	95% Confidence Interval ⁵
National	146,950,807	54,282	93,184.43	0.58	0.58-0.59
State of Utah	853,295	322	518.36	0.62	0.56-0.69
Alta View Hospital	9,389	4	4.36	0.92	0.29-2.21
American Fork Hospital	15,605	2	6.99	0.29	0.05-0.94
Ashley Regional Medical Center	4,133	0	2.12	0.00	0.00-1.41
Bear River Valley Hospital	1,189	0	0.39	*	*
Beaver Valley Hospital	729	0	0.21	*	*
Brigham City Community Hospital	2,552	0	0.59	*	*
Cache Valley Hospital	1,979	0	0.46	*	*
Castleview Hospital	4,312	1	2.73	0.37	0.02-1.81
Central Valley Medical Center	1,994	0	0.44	*	*
Cedar City	6,819	0	2.87	0.00	0.00-1.04
Davis Hospital and Medical Center	14,420	4	7.64	0.52	0.17-1.26
Delta Community Medical Center	626	0	0.17	*	*
Dixie Regional Medical Center	59,181	11	35.99	0.31	0.16-0.53
Fillmore Community Medical Center	553	0	0.15	*	*
Garfield Memorial Hospital	1,018	0	0.22	*	*
HealthSouth Rehabilitation Hospital of Utah	11,489	5	3.00	1.67	0.61-3.70
Heber Valley Medical Center	2,081	0	0.71	*	*
Huntsman Cancer Hospital	30,617	39	42.41	0.92	0.66-1.24
Intermountain Medical Center	111,474	43	78.01	0.55	0.40-0.74
Jordan Valley Medical Center	14,400	17	11.06	1.54	0.93-2.41
Jordan Valley Medical Center West Valley Campus	8,301	7	8.79	0.80	0.35-1.58
Lakeview Hospital	11,623	1	3.57	0.28	0.01-1.38
Landmark Hospital	1,547	0	1.27	0.00	0.00-2.35
Layton Hospital	5,188	2	1.40	1.42	0.24-4.70
LDS Hospital	28,491	32	18.99	1.69	1.17-2.35
Logan Regional Hospital	15,094	4	7.04	0.57	0.18-1.37
Lone Peak Hospital	4,573	0	1.46	0.00	0.00-2.05
McKay Dee Hospital	51,607	4	31.65	0.13	0.04-0.30
Mountain Point Medical Center	4,335	2	2.37	0.84	0.14-2.79
Mountain View Hospital	10,666	0	4.66	0.00	0.00-0.64
Mountain West Medical Center	3,599	0	0.74	*	*

Table 8 continued

	Number of patient days ¹	Number of hospital onset <i>C. difficile</i> events ²	Predicted number of hospital onset <i>C. difficile</i> events ³	Standardized Infection Ratio ⁴	95% Confidence Interval ⁵
National	146,950,807	54,282	93,184.43	0.58	0.58-0.59
State of Utah	853,295	322	518.36	0.62	0.56-0.69
Northern Utah Rehabilitation Hospital	6,196	3	2.17	1.39	0.35-3.77
Ogden Regional Medical Center	22,259	7	9.65	0.73	0.32-1.44
Orem Community Hospital	2,548	1	0.62	/	/
Park City Medical Center	4,627	0	1.23	0.00	0.00-2.43
Primary Children's Hospital	59,275	18	23.64	0.76	0.47-1.18
Promise Hospital of Salt Lake	11,821	7	10.54	0.66	0.29-1.31
Riverton Hospital	15,108	1	4.26	0.23	0.01-1.16
Salt Lake Regional Medical Center	9,952	5	5.97	0.84	0.31-1.86
Sanpete Valley Hospital	1,425	0	0.49	*	*
Sevier Valley Medical Center	2,783	0	0.54	*	*
Shriners Hospitals for Children	898	0	0.14	*	*
South Davis Community Hospital	9,038	10	10.42	0.96	0.49-1.71
St. Mark's Hospital	48,532	6	22.41	0.27	0.11-0.56
The Orthopedic Speciality Hospital	3,490	0	0.52	*	*
Timpanogos Regional Hospital	11,635	0	4.76	0.00	0.00-0.63
Uintah Basin Medical Center	4,551	1	2.07	0.48	0.02-2.38
University of Utah Hospital	118,840	57	81.00	0.70	0.54-0.91
Utah Valley Regional Medical Center	64,128	24	45.08	0.53	0.35-0.78
Utah Valley Specialty Hospital	9,786	4	7.50	0.53	0.17-1.29
Valley View Medical Center	6,819	0	2.87	0.00	0.00-1.04

+Source: Utah data is CMS; National data is NHSN.

/ Predicted to have less than one infection for the year, but had one or more infections, as defined by NHSN, in 2019.

* Predicted to have less than one infection for the year, and reported ZERO infections, as defined by NHSN, in 2019.

¹ Number of patient days: The total number of days that patients stay at a facility per year. Patient days data for *C. difficile* infections excludes newborn nursery patient days data.

² Number of *C. difficile* events: The total number of *C. difficile* infections reported per year.

³ Predicted number of *C. difficile* events: The number of *C. difficile* infections anticipated to occur based on historical data of comparable ICUs.

⁴ Standardized Infection Ratio: Compares the total number of *C. difficile* infections in a facility to a national benchmark. Rates are adjusted based on the type and size of the facility.

⁵ Confidence interval: A 95% confidence interval means that if the sampling of rates was repeated over more periods of time, 95 times out of 100, the true value would be expected to fall within the range shown.

Table 9. Methicillin-resistant *Staphylococcus aureus* bacteremia in acute care facilities, Utah, 2019⁺

	Number of patient days ¹	Number of MRSA bacteremia events ²	Predicted number of MRSA bacteremia events ³	Standardized Infection Ratio ⁴	95% Confidence Interval ⁵
National	159,884,986	8,131	9,952.62	0.82	0.80-0.84
State of Utah	988,038	37	52.03	0.71	0.51-0.97
Alta View Hospital	11,899	0	0.50	*	*
American Fork Hospital	23,543	0	0.78	*	*
Ashley Regional Medical Center	4,648	0	0.15	*	*
Bear River Valley Hospital	1,402	0	0.03	*	*
Beaver Valley Hospital	801	0	0.02	*	*
Brigham City Community Hospital	2,552	0	0.06	*	*
Cache Valley Hospital	2,225	0	0.04	*	*
Castleview Hospital	4,669	0	0.20	*	*
Cedar City	8,430	0	0.20	*	*
Central Valley Medical Center	1,994	0	0.04	*	*
Davis Hospital and Medical Center	17,028	2	0.73	/	/
Delta Community Medical Center	837	0	0.02	*	*
Dixie Regional Medical Center	66,875	1	2.97	0.34	0.02-1.66
Fillmore Community Medical Center	626	0	0.01	*	*
Garfield Memorial Hospital	1,081	0	0.02	*	*
Heber Valley Medical Center	2,423	0	0.05	*	*
Huntsman Cancer Hospital	30,617	3	3.31	0.91	0.23-2.47
Intermountain Medical Center	140,955	4	9.85	0.41	0.13-0.98
Jordan Valley Medical Center	19,569	0	0.76	*	*
Jordan Valley Medical Center West Valley Campus	9,336	0	0.37	*	*
Lakeview Hospital	12,971	0	0.46	*	*
Layton Hospital	6,894	0	0.16	*	*
LDS Hospital	34,004	0	1.44	0.00	0.00-2.09
Logan Regional Hospital	20,388	1	0.60	/	/
Lone Peak Hospital	5,253	0	0.09	*	*
McKay Dee Hospital	65,558	3	3.26	0.92	0.23-2.50

Table 9 continued

	Number of patient days ¹	Number of MRSA bacteremia events ²	Predicted number of MRSA bacteremia events ³	Standardized Infection Ratio ⁴	95% Confidence Interval ⁵
National	159,884,986	8,131	9,952.62	0.82	0.80-0.84
State of Utah	988,038	37	52.03	0.71	0.51-0.97
Mountain Point Medical Center	5,776	1	0.20	/	/
Mountain View Hospital	11,506	1	0.41	/	/
Mountain West Medical Center	3,599	0	0.08	*	*
Ogden Regional Medical Center	28,715	0	1.51	0.00	0.00-1.98
Orem Community Hospital	4,201	0	0.08	*	*
Park City Medical Center	5,267	0	0.09	*	*
Primary Children's Hospital	74,046	6	2.70	2.23	0.90-4.63
Riverton Hospital	21,713	0	0.47	*	*
Salt Lake Regional Medical Center	10,591	1	0.42	/	/
Sanpete Valley Hospital	1,633	0	0.03	*	*
Sevier Valley Medical Center	3,261	0	0.06	*	*
St. Mark's Hospital	58,038	4	2.52	1.59	0.50-3.83
The Orthopedic Speciality Hospital	3,490	0	0.04	*	*
Timpanogos Regional Hospital	19,129	0	0.74	*	*
Uintah Basin Medical Center	4,551	0	0.10	*	*
University of Utah Hospital	140,983	9	10.85	0.83	0.40-1.52
Utah Valley Regional Medical Center	86,531	1	5.41	0.18	0.01-0.91
Valley View Medical Center	8,430	0	0.20	*	*

*Source: All Utah data is CMS; National data is NHSN.

/ Predicted to have less than one infection for the year, but had one or more infections, as defined by NHSN, in 2019.

* Predicted to have less than one infection for the year, and reported ZERO infections, as defined by NHSN, in 2019.

¹ Number of patient days: The total number of days that patients stay at a facility per year.

² Number of MRSA events: The total number of MRSA bacteremia infections reported per year.

³ Predicted number of MRSA events: The amount of MRSA bacteremia infections anticipated to occur based on historical data of comparable facilities.

⁴ Standardized Infection Ratio: Compares the total number of MRSA bacteremia in a facility to a national benchmark. Rates are adjusted based on the type and size of the facility.

⁵ Confidence interval: A 95% confidence interval means that if the sampling of rates was repeated over more periods of time, 95 times out of 100, the true value would be expected to fall within the range shown.

Appendix D

Understanding CLABSI and CAUTI Rates in Long-term Acute Care Facilities with Intensive Care Units and Wards or Inpatient Rehabilitation Facilities

The device infection event tables depict specific device-associated infections (central line-associated bloodstream infections [CLABSI], catheter-associated urinary tract infections [CAUTI]), reported by long-term acute care facilities (LTAC) with intensive care units (ICU) and inpatient rehabilitation facilities (IRF).

To understand the HAI report, it is important to know what each of the data elements in the table mean. Below is an example of fictitious data from an LTAC or IRF. Each column is numbered and provides an explanation of each data element and its result.

Table D. Device infection events in long-term acute care facilities with intensive care units and wards or inpatient rehabilitation facilities, Utah, 2019

	Number of HAI device days	Number of HAI device events	Predicted number of HAI device events	Standardized Infection Ratio	95% Confidence Interval
State of Utah	#	#	#	#	#
Facility D	5,817	8	13	1.36	0.64-2.56
1	2	3	4	5	6

1. Long-term acute care facilities or inpatient rehabilitation facilities are listed here by name (Facility D).
2. For each reporting facility listed, patients with central line catheters/urinary catheters (devices) are identified every day. A device count is performed at the same time each day. Each patient with one or more central line catheters at the time the count is performed is counted as having one device day. Each patient with a urinary catheter at the time the count is performed is counted as having one device day. For example, a patient with one or more central line catheters and one urinary catheter would be counted as having one central line day and one urinary catheter day. The number of device days in this column (5,817) represents the total number of specific device days for all patients who were in Facility D during the year.
3. When a patient develops an HAI device-associated infection while having a device in place or within one day after removal of the device, the infection is considered a device-associated HAI if it meets the criteria set forth by NHSN. The number of HAI events in this column (8) represents the total number of specific HAIs identified in patients in Facility D during the year.

4. The predicted number of HAI device events is adjusted to allow facilities to be more fairly compared. Risk adjustments account for differences in patient populations in terms of severity of illness and other factors that may affect the risk of developing an HAI. A facility that uses many devices on very sick patients would be predicted to have a higher device infection rate than a facility that uses fewer devices and has healthier patients. The predicted number of HAI device events for Facility D, based on comparison to a national HAI benchmark of similar hospitals, is calculated as 13.
5. The standardized infection ratio (SIR) is a summary measure developed by NHSN to track HAIs at the national, state, local, or facility level over time. The SIR compares the *total* number of HAI device events for Facility D (8) to the *predicted* number of HAI device events (13), based on “standard population” data. For purposes of this report, the standard population is HAI data reported nationally by thousands of facilities using NHSN. The SIR for Facility D, based on comparison to a national HAI benchmark of facilities that are similar to Facility D, is calculated as 0.62. Facilities with a predicted number of HAI events less than one do not have enough device day data to reliably compare their data to the standard population. Consequently, SIRs are not provided for health care facilities with a predicted number less than one.
6. A confidence interval (CI) will be provided if a SIR was estimated for a given healthcare facility. A CI describes the uncertainty associated with the SIR estimate. Facilities with more device days will have a narrower CI, which means there is less doubt associated with the accuracy of the SIR compared to facilities with fewer device days. This is because there is more information about a facility's performance with additional device days. A 95% CI means that 95 times out of 100, the true value would be expected to fall within the range shown.

Table 10. Central-line associated bloodstream infections in long-term acute care facilities with intensive care units and wards, Utah, 2019⁺

	Number of central line days ¹	Number of CLABSI events ²	Predicted number of CLABSI events ³	Standardized Infection Ratio ⁴	95% Confidence Interval ⁵
National	1,851,653	1,768	2,292.26	0.77	0.74-0.81
State of Utah	15,778	8	15.90	0.50	0.23-0.96
Landmark Hospital	666	0	0.70	*	*
Promise Hospital	7,088	4	8.62	0.46	0.15-1.12
South Davis Community Hospital	2,738	2	3.10	0.65	0.11-2.13
Utah Valley Specialty Hospital	5,286	2	3.49	0.57	0.10-1.90

⁺Source: CMS data.

/ Predicted to have less than one infection for the year, but had one or more infections, as defined by NHSN, in 2019.

* Predicted to have less than one infection for the year, and reported ZERO infections, as defined by NHSN, in 2019.

¹ Number of central line days: The total number of days that a patient has a central line.

² Number of CLABSI events: The total number of central line-associated bloodstream infections reported per year.

³ Predicted number of CLABSI events: The number of central line-associated bloodstream infection events anticipated to occur based on historical data of comparable long-term acute care facilities.

⁴ Standardized Infection Ratio: Compares the total number of CLABSI events in long-term acute care facilities to a national benchmark.

⁵ Confidence interval: A 95% confidence interval means that if the sampling of rates was repeated over more periods of time, 95 times out of 100, the true value would be expected to fall within the range shown.

Table 11. Catheter-associated urinary tract infections in long-term acute care facilities with intensive care units and wards, Utah, 2019⁺

	Number of catheter days ¹	Number of CAUTI events ²	Predicted number of CAUTI events ³	Standardized Infection Ratio ⁴	95% Confidence Interval ⁵
National	1,978,596	1,924	2,421.20	0.80	0.76-0.83
State of Utah	10,445	25	19.26	1.30	0.86-1.89
Landmark Hospital	606	3	0.75	/	/
Promise Hospital	3,984	11	9.65	1.14	0.60-1.98
South Davis Community Hospital	1,877	1	3.96	0.25	0.01-1.24
Utah Valley Specialty Hospital	3,978	10	4.90	2.04	1.04-3.63

⁺Source: CMS data.

/ Predicted to have less than one infection for the year, but had one or more infections, as defined by NHSN, in 2019.

* Predicted to have less than one infection for the year, and reported ZERO infections, as defined by NHSN, in 2019.

¹ Number of catheter days: The total number of days that a patient has a urinary catheter.

² Number of CAUTI events: The total number of catheter-associated urinary tract infections reported per year.

³ Predicted number of CAUTI events: The number of catheter-associated urinary tract infections anticipated to occur based on historical data of comparable long-term acute care facilities.

⁴ Standardized Infection Ratio: Compares the total number of catheter-associated urinary tract infections in long-term acute care facilities to a national benchmark.

⁵ Confidence interval: A 95% confidence interval means that if the sampling of rates was repeated over more periods of time, 95 times out of 100, the true value would be expected to fall within the range shown.

Table 12. Catheter-associated urinary tract infections in inpatient rehabilitation facilities, Utah, 2019⁺

	Number of catheter days ¹	Number of CAUTI events ²	Predicted number of CAUTI events ³	Standardized Infection Ratio ⁴	95% Confidence Interval ⁵
National	574,328	1,171	1,021.14	1.15	1.08-1.21
State of Utah	3,304	7	6.96	1.01	0.44-1.99
Dixie Regional Medical Center	172	0	0.47	*	*
HealthSouth Rehabilitation Hospital of Utah	822	0	0.89	*	*
Intermountain Medical Center	152	0	0.41	*	*
Jordan Valley Medical Center	144	0	0.27	*	*
McKay Dee Hospital	190	0	0.52	*	*
Northern Utah Rehabilitation Hospital	311	1	0.34	/	/
Salt Lake Regional Medical Center	49	0	0.07	*	*
St. Mark's Hospital	267	0	0.73	*	*
University of Utah Hospital	616	2	1.68	1.19	0.20-3.94
Utah Valley Regional Medical Center	581	4	1.58	2.53	0.80-6.10

⁺Source: CMS data.

/ Predicted to have less than one infection for the year, but had one or more infections, as defined by NHSN, in 2019.

* Predicted to have less than one infection for the year, and reported ZERO infections, as defined by NHSN, in 2019.

¹ Number of catheter days: The total number of days that a patient has a urinary catheter.

² Number of CAUTI events: The total number of catheter-associated urinary tract infections reported per year.

³ Predicted number of CAUTI events: The number of catheter-associated urinary tract infections anticipated to occur based on historical data of comparable inpatient rehabilitation facilities.

⁴ Standardized Infection Ratio: Compares the total number of catheter-associated urinary tract infections in inpatient rehabilitation facilities to a national benchmark.

⁵ Confidence interval: A 95% confidence interval means that if the sampling of rates was repeated over more periods of time, 95 times out of 100, the true value would be expected to fall within the range shown.

Table 13. Dialysis event bloodstream infections, Utah, 2019⁺

	Number of patient months ¹	Number of Dialysis Event BSI ²	Predicted number of Dialysis Event BSI ³	Standardized Infection Ratio ⁴	95% Confidence Interval ⁵
National	N/A[†]	N/A[†]	N/A[†]	N/A[†]	N/A[†]
State of Utah	20,171	91	125.27	0.73	0.59-0.89
American Fork Dialysis Center	216	1	1.72	0.58	0.03-2.86
Blue Mountain Hospital Dialysis Center	400	2	2.13	0.94	0.16-3.11
Bonneville Dialysis Center	491	2	3.01	0.66	0.11-2.19
Castleview Dialysis Center	210	1	1.59	0.63	0.03-3.10
Desert Valley Dialysis Center	318	0	3.24	0.00	0.00-0.92
Farmington Bay Dialysis Center	435	5	2.58	1.94	0.71-4.30
Hurricane Dialysis	232	3	1.84	1.63	0.41-4.43
Intermountain Medical Center Dialysis Center	1,113	3	5.04	0.60	0.15-1.62
Iron Mission Dialysis Center	400	1	2.24	0.45	0.02-2.20
Kolff Dialysis Center	637	3	4.42	0.68	0.17-1.85
Lakeside Dialysis Center	383	1	3.40	0.29	0.01-1.45
Liberty Dialysis Layton	569	0	5.29	0.00	0.00-0.57
Liberty Dialysis Ogden	496	1	3.47	0.29	0.01-1.42
Liberty Dialysis St. George	799	8	4.94	1.62	0.75-3.07
Liberty Dialysis West Jordan	687	7	3.72	1.88	0.82-3.72
Logan Regional Dialysis Center	676	0	4.12	0.00	0.00-0.73
Lone Peak Dialysis	722	4	3.79	1.05	0.34-2.54
Mark Lindsay Dialysis Center	324	2	1.96	1.02	0.17-3.37
Oquirrh Artificial Kidney Center	1,222	4	6.63	0.60	0.19-1.46
Payson Regional Dialysis	376	2	2.28	0.88	0.15-2.89
Pleasant View Dialysis Center	498	3	2.94	1.02	0.26-2.78
Primary Children's Dialysis Center	58	1	0.93	/	/
Provo Dialysis	334	0	1.66	0.00	0.00-1.81
Sevier Valley Dialysis	300	1	1.63	0.61	0.03-3.03
South Mountain Dialysis	665	2	4.35	0.46	0.08-1.52
South Valley Dialysis Center	531	3	3.68	0.82	0.21-2.22
Tooele Valley Dialysis	333	0	1.86	0.00	0.00-1.61
UBMC Dialysis Roosevelt	637	2	4.94	0.40	0.07-1.34
Uintah Basin Medical Center Dialysis Vernal	158	0	1.56	0.00	0.00-1.92
University of Utah Dialysis Program Dixie Dialysis	780	1	5.08	0.20	0.01-0.97
Utah Dialysis Center	797	2	4.26	0.47	0.08-1.55
Utah Valley Dialysis Center	1,488	15	8.06	1.86	1.08-3.00

Table 13 continued

	Number of patient months ¹	Number of Dialysis Event BSI ²	Predicted number of Dialysis Event BSI ³	Standardized Infection Ratio ⁴	95% Confidence Interval ⁵
National	N/A[‡]	N/A[‡]	N/A[‡]	N/A[‡]	N/A[‡]
State of Utah	20,171	91	125.27	0.73	0.59-0.89
Wasatch Artificial Kidney Center	1,219	1	7.43	0.13	0.01-0.66
Weber Valley Dialysis	166	0	0.83	*	*
West Bountiful Dialysis	143	1	0.71	/	/
West Valley Dialysis Clinic	991	6	6.53	0.92	0.37-1.91
Woods Cross Dialysis	367	3	1.41	2.13	0.54-5.79

+Source: CMS data.

‡ Not available at the time of publishing.

/ Predicted to have less than one infection for the year, but had one or more infections, as defined by NHSN, in 2019.

* Predicted to have less than one infection for the year, and reported ZERO infections, as defined by NHSN, in 2019.

¹ Number of patient months: The number of patient-months are equal to the summed number of patient-month denominators reported by the facility during the year. To calculate patient-months, facilities report the number of hemodialysis outpatients who were dialyzed in the facility on the first two working days of the month, using the Denominators for Dialysis Event Surveillance form. This count is used to estimate the number of patient-months that there is risk of a healthcare-associated infection.

² Number of dialysis event BSI: The total number of bloodstream infections that were reported per year.

³ Predicted number of dialysis event BSI: The number of bloodstream infections anticipated to occur based on historical data of comparable dialysis facilities.

⁴ Standardized Infection Ratio: Compares the total number of bloodstream infections in dialysis facilities to a national benchmark.

⁵ Confidence interval: A 95% confidence interval means that if the sampling of rates was repeated over more periods of time, 95 times out of 100, the true value would be expected to fall within the range shown.

Appendix E

Definitions

- 1. Abdominal hysterectomy** - An abdominal hysterectomy is a surgical procedure in which the uterus is removed through an incision in the lower abdomen.
- 2. Acute care facility** - A hospital that provides inpatient medical care and other related services for surgery, acute medical conditions, or injuries (usually for a short-term illness or condition).
- 3. Catheter-associated urinary tract infection (CAUTI)** - Infection involving any part of the urinary system, including urethra, bladder, ureters, and kidney that are caused by the insertion of a urinary catheter.
- 4. Central line** - A catheter (tube) placed in a large vein in the neck, chest, or groin that ends at, or close to, the heart to give medication or fluids, collect blood for medical tests, or monitor blood flow.
- 5. Central line days (CLDs)** - Refers to the number of patients with a central line in place. Central line days are calculated by recording the number of patients who have a central line for each day of the month at the same time each day for a specific care location. At the end of the month, the sum of all days is recorded. For purposes of this report, the total is recorded as the sum of all days in a year. Patients having more than one central line in place at a given time are counted as having only one central line day.
- 6. Central line-associated bloodstream infection (CLABSI)** - A serious infection that occurs when germs (usually bacteria) that are not related to another infection enter the bloodstream through the central line catheter.
- 7. Centers for Medicare and Medicaid Services (CMS)** - A federal agency within the U.S. Department of Health and Human Services that administers Medicare, Medicaid, the State Children's Health Insurance Program, and sets health insurance portability standards.
- 8. *Clostridioides difficile*** - *Clostridioides difficile* is a germ that causes diarrhea. It is spread from person-to-person on contaminated equipment and on the hands of health care personnel and visitors. Most cases occur in patients taking antibiotics for long periods of time and in the elderly with certain medical problems.
- 9. Colon surgery** - Colon surgery is an operation performed on the large intestine, rectum, anus, and/or the perianal area.
- 10. Confidence interval (CI)** - A statistical measure of the precision of a rate estimate. It is a plus-or-minus range around the infection rate reported. A 95% confidence interval means

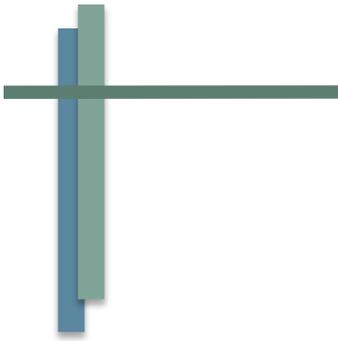
that if the sampling of rates was repeated over more periods of time, 95 times out of 100, the true value would be expected to fall within the range shown.

- 11. Dialysis** - Kidney dialysis is a life-support treatment that uses a special machine to filter harmful wastes, salt, and excess fluid from the blood. This restores the blood to a normal, healthy balance. Dialysis replaces many of the kidney's important functions. Hemodialysis is when the blood is filtered using a dialyzer and dialysis machine.
- 12. Dialysis facility** - An outpatient facility where a medical procedure (dialysis) is administered to people with end-stage kidney disease.
- 13. Healthcare-associated infection (HAI)** - An infection that develops in a person who is cared for in any setting where healthcare is delivered (e.g., acute care hospital, skilled nursing facility, dialysis center, etc.) that was not developing or present at the time of admission to that healthcare setting.
- 14. Inpatient rehabilitation facilities (IRFs)** - IRFs are freestanding rehabilitation hospitals and rehabilitation units in acute care hospitals. They provide an intensive rehabilitation program and patients who are admitted must be able to tolerate three hours of intense rehabilitation services per day.
- 15. Intensive Care Unit (ICU)** - An area in the hospital where severely ill patients are closely monitored and receive advanced life support.
- 16. Long-term acute care facility (LTAC)** - A facility that provides a range of institutional healthcare programs and services, such as comprehensive rehabilitation, respiratory therapy, head trauma treatment, and pain management, outside the acute care hospital.
- 17. MRSA bacteremia** - An infection in the blood that is caused by the bacteria *Staphylococcus aureus* and is resistant to methicillin antibiotics.
- 18. National rate** - The national rate is determined by the NHSN as similar facilities and specific infection events are compared nationwide.
- 19. National Healthcare Safety Network (NHSN)** - The nation's most widely used healthcare-associated infection (HAI) tracking system. NHSN provides facilities, states, regions, and the nation with data needed to identify problem areas, measure progress of prevention efforts, and ultimately eliminate HAIs. The system is supported by the U.S. Centers for Disease Control and Prevention.
- 20. Standardized infection ratio (SIR)** - A statistic used to calculate, track, and interpret the number of new HAIs. The SIR is determined by comparing the actual number of HAIs to the predicted number of HAIs for a specific group of patients admitted to a specific patient care unit.

- 21. Standard population** - The population against which each of its essential classes or groups can be compared. For purposes of this report, the standard population is the national HAI data reported by the thousands of U.S. facilities that use the NHSN system.
- 22. Surgical site infection (SSI)** - A surgical site infection is an infection that occurs after surgery in the part of the body where the surgery took place. Many SSIs involve the skin only. Other SSIs are more serious and involve deep tissue or organs and usually result in prolonged or re-hospitalization.
- 23. Utah Healthcare Infection Prevention Governance Committee (UHIP GC)** - A multi-disciplinary panel of state leaders in patient safety, infectious diseases, and infection control. Membership is comprised of a broad base of care delivery groups across the state and organized under and staffed by the Utah Department of Health.
- 24. Urinary catheter** - A flexible tube that is inserted through the urethra and into the bladder to drain urine from the bladder into a bag or container.

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